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Cover Photo: Canadian National's 4-8-2 No. 6060, "Bullet Nose Betty," is shown clipping across the Credit River at Port Credit, Ontario, doing 60 m.p.h., on way to Niagara Falls, Sept. 3, 1977. CN operated bi-weekly trips with 6060 on this route throughout that summer. Photograph was made by Ronald N. Johnson.

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The great 200-foot-wide train shed of Grand Central Depot in New York City as it appeared in the early 1870's. Thirty-five years later, the first New York Central electric locomotives would start to replace steam (see feature).

New York Public Library Picture Collection

RAILROADS ILLUSTRATED

Mail & Express

OUR NEXT ISSUE will begin printing letters from readers. *Railroads Illustrated* is a new quarterly, not merged into anything nor dictated to by advertisers. It is your magazine. We will publish your opinions, ideas, experiences, beefs, and reminiscences. Get in on the ground floor by telling us what kinds of articles and pictures you like best.

Write us a letter about an unusual train ride, a narrow escape, a train wreck you witnessed, or a lucky break you had in shooting pictures. What is your occupation? Are there any railroaders in your family tree? What is your specialized interest? Do you swap photos or other railroadiana?

Mail your communication to *Railroads Illustrated*, 40 East 66th Street, New York, N.Y. 10021. Unless you keep it fairly short, we may have to cut it to fit our available space. Shall we print your name and full address with your letter? If you say no, we won't, But being identified in a national magazine could make you better known, broaden your contacts, get some facts or pictures you need, find pen pals, maybe even start a lifelong friendship.

Historical footnote

Did you know that John Wilkes Booth, the hate-crazed actor who murdered President Lincoln in 1865, had a kindly older brother, Edwin Thomas Booth, a much greater actor than himself, who saved the life of Lincoln's son Robert in a Pennsylvania Railroad station?

It happened at Jersey City, N.J., one night in 1861. Robert was 18. While watching a friend board a train for Philadelphia, he lost his footing in the crowd and fell to what seemed like certain death. Years later, after his father and the two Booths were dead, Robert was asked if he recalled the incident.

"Yes," he replied. "The train began to move, and by its motion I was pushed off the station platform. I had dropped with feet downward into the open space between the cars and platform and was personally helpless, when my collar was vigorously seized and I was quickly pulled up onto a secure footing. Upon turning to thank my rescuer, I recognized Edwin Booth, whose face was of course well known. I expressed my gratitude and in doing so called him by name."

But the actor did not learn whom he had rescued until two weeks afterward, when General Adam Badeau sent him a letter saying Robert Lincoln had mentioned it.

Edwin Booth New York Public Library

Around the Nation

Some 640 acres of Burlington Northern timberland disappeared into the crater of Mt. St. Helens volcano in Washington or drifted across the country as fine ash after the May 18 eruption. "What we have up there now is mostly crater," lamented S. C. Merryman, vice president of the diversified railroad company's timber and land resources.

In the 1970 merger BN acquired these forests from the Northern Pacific, which got them as Federal land grants in 1864. BN also owns 40,800 acres near the mountain, much of it strewn with trees felled by the volcano. Volcanic ash up to 40 inches deep covers considerable land within 30 miles of the crater. This ash, mixed with water, turned into thick hard mud that seriously hampers plans to salvage the fallen timber.

Norfolk & Western and the Southern on June 3 announced a preliminary agreement to merge into a single company (name not yet disclosed) by exchanging stock. Their total 1979 earnings were nearly $100 million, total employees 43,600. The proposed system would have 17,500 miles of track, $5.7 billion in assets. It would have to be approved by both roads' boards of directors and stockholders and by the ICC.

New York subway system's *JFK Express*, which takes people to and from Kennedy Airport, averages 1.3 million riders a year and has an annual deficit of $2.5 million and climbing, according to John D. Simpson, executive director of the Metropolitan Transportation Authority, who wants to discontinue it. This train runs from 7 stations in Manhattan and one in Brooklyn, in Howard Beach, near the airport. Travelers ride the rest of the way in a city bus. Total fare is $4.00. A taxi costs up to $30, including tolls and tips, from midtown Manhattan to the airport.

Although rail freight traffic in the U.S., Canada, and Mexico reached an alltime high in 1979, the number of loss and damage claims filed against the railroads, 2.11 million in that year, was the lowest in 43 years, according to the Association of American Railroads, while the ratio of freight revenues paid out to satisfy those claims, 1.2%, was the lowest in 24 years. Total claim payments in 1979 exceeded $320 million, due partly to increasing robbery and theft.

Will the SP-ATSF merger be consummated? Railroad history is strewn with the wrecks of contemplated mergers fallen by the wayside like buffalo bones on the old Western plains long ago. The Southern Pacific Company and Santa Fe Industries, which owns and operates the Atchison, Topeka & Santa Fe Railway among other enterprises, last May 15th announced a preliminary agreement to merge the two giant systems by exchanging securities. This would be a $1.2 billion deal. If approved, it would create a 25,000 mile rail network.

But before that could happen, directors and stockholders would have to accept a definitive agreement by September. If that hurdle is crossed, there would still be Interstate Commerce Commission hearings, at which the U.S. Department of Justice is expected to oppose the move on the ground that such a merger would create a monopoly, leaving many towns and shippers without competitive rail service. The ICC would have 11 months to accept or reject the merger application.

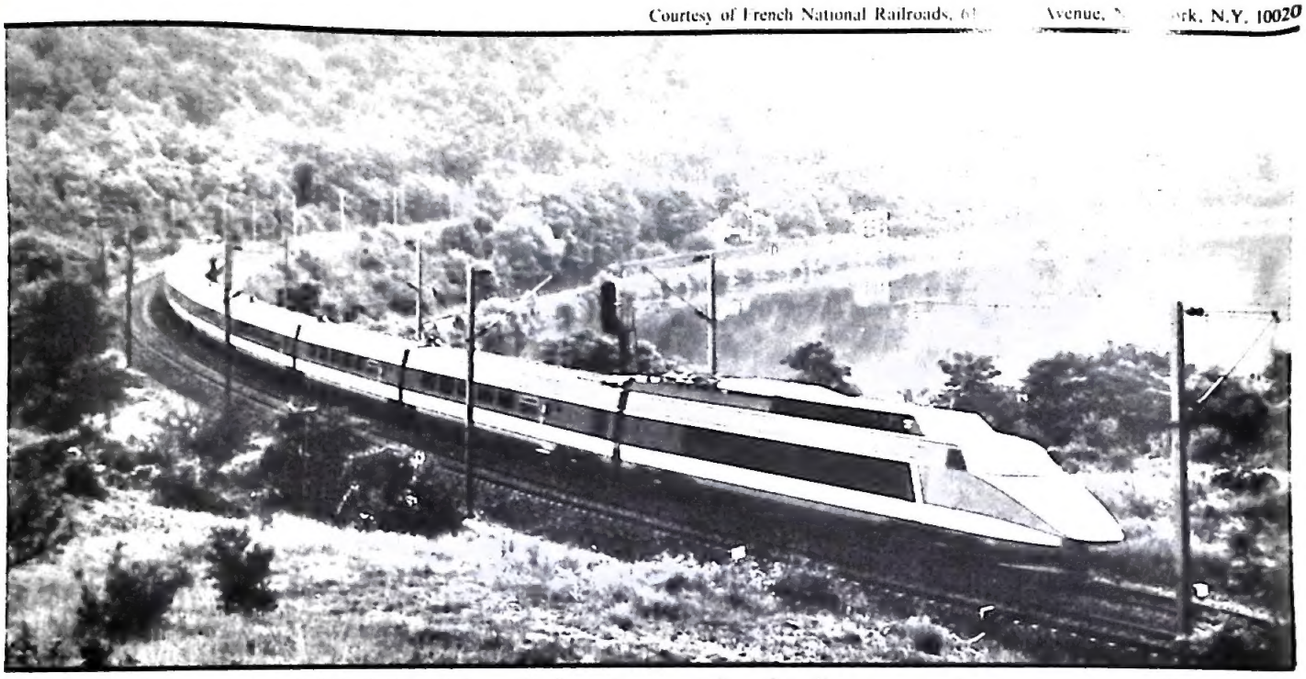
As we go to press, Conrail is laying off 1,750 employees indefinitely. Declining industrial production, conspicuously in the auto and semi-finished iron and steel sectors, has cut its overall traffic 14 percent so far this year. The railroad said that auto shipments were off 36 percent compared to the year-earlier period.

Today, unit trains haul more than half of the American coal shipped by rail. In 1977 President Carter urged a 75% jump in coal production by 1985—to 1.2 billion tons annually. Yet 1979's output climbed to only 770 million, and the National Coal Association estimates that only 972 million tons at best will be mined by 1985.

We look back nostalgically to the years when New York's subway-elevated fare was kept down to a nickel. Today a ride on the city's overcrowded, dirty, and poorly-maintained transit vehicles costs 60¢ and, although the nation's inflation spiral seems to have been checked, there is much talk of a 65¢ or even 75¢ fare in the near future.

But what alternative is there? Increased demand for mass transportation by motorists, spurred by climbing gasoline prices, is in turn creating a need for greater capital outlays to serve this rising patronage. And while ridership nationwide is rising—it was up 6.8% in 1979—much of it is concentrated in busy rush hours, leav-

Courtesy of French National Railroads, 61 Avenue, N rk, N.Y. 10020



France's new high-speed train (TGV) during trials on the Paris-Lyon mainline. Gasoline consumption per passenger will be one-fifth that of an aircraft. Exterior paint scheme includes white, red, black, and orange.

ing men and equipment idle for most of the day. Coupled with union demands for wage boosts above the national average, and enforced by crippling strikes in some cities, operating costs recently have soared.

All over the land you hear the same story: mass transit agencies going deeper and deeper into debt, increasing need for mass transit, insufficient aid from state and federal treasuries, union strike pressure, and frantic efforts to meet rising costs by increasing fares, as was done recently in Pittsburgh, Los Angeles, Cleveland, and elsewhere.

The nation's transit managers are in a bind. Most don't want to raise fares, but Federal planners, under pressure from the Carter Administration to cut the budget, have ruled out big boosts in subsidies. Indeed, many planners argue for sharply higher fares locally to take advantage of the fact that motorists can no longer use their autos as much as they once did and really have no choice but to pay higher fares.

All transit agencies are sinking into financial quagmires. In 1978, estimates the American Transit Association, the total U.S. transit deficit was about $2.33 billion and getting worse. One bright note, however, relates to capital spending for subway work and buses: partly using the "windfall profits" tax on oil, this form of aid is slated to nearly double, to about $2.5 billion in fiscal 1981.

Another pending merger is the vast Seaboard-Chessie System linkup Southern Pacific owns 9.8 percent of Seaboard Coast Line. If the merger is consummated, SP would be the largest stockholder in the new corporation.

CHANGING TIMES. The Burlington Northern's new president and chief executive officer, effective June 1, 1980, is Richard M. Bressler, whose previous experience was with General Electric, American Airlines, and Atlantic Richfield, an oil company. Speaking of BN, Bressler was quoted as saying, "it's really in the right part of the country as far as resource development is concerned." Rarely these days, it seems, does a big rail corporation pick an operating railroad man for its top job.

Overseas

Challenging the domestic airline, the French National Railroads (SNCF) has developed a new ultra-sleek, electric-powered TGV (*Train de Grande Vitesse*), France's train of the future, that easily and smoothly made 180 mph on test runs. TGV is due to begin regular service between Paris and Lyon in October, 1981, and trains will be run on a specially-built line open to passenger traffic only. Travel time will be cut to just 1 hour from the 3 hours and 44 minutes that the fastest train now makes between those points. By airplane, Paris to Lyon theoretically takes less than one hour, but it usually takes the average traveler about four hours because of frequent traffic delays around airports.

Britain's Thatcher government recently scotched plans to put any money into building a rail tunnel under the British Channel. Speaking for the government, transport minister Norman Fowler stated that if the plan was commercially sound private risk capital should finance it, not the taxpayer. Despite the rebuff, British Rail wants to go ahead with the project and claims that it has had "encouraging" talks with unnamed bankers. Both British Rail and the French SNCF are proposing a single-track tunnel that they estimate will take seven years to build. Cost? About $1.5 billion.

Anticipatory comments

Interested to hear about *Railroads Illustrated*. There seems to be room for a quality periodical. Most are a mixed bag.—Commander James Plomer, *The Birches*, RR2, Milford., Ont., Canada KOK 280.

I'm delighted to learn about *Railroads Illustrated*, especially because you plan to include some nostalgic material. It should be well received.—Howard Greene, president, Railway & Locomotive Historical Society, P.O. Box 966, Pocasset, Mass. 02559.

I think you're crazy to start a new rail publication, but I wish you good luck and look forward to seeing the first issue.—Arnold B. Joseph, 2512 Tratman Ave., Bronx, N.Y. 10461.

At railroad shows I note a lot more interest in Amtrak and Conrail than in New York Central, Pennsy, New Haven, or other long gone names of glory. I think people today are more interested in the current scene than in nostalgia. Occasionally I like reading old-time stuff but prefer a road's history which takes it right

to the present. I think you should run a column with information about current orders for locomotives, vans, freight and passenger cars.—Warren L. Smith, c/o Replica Mail Specialties, Box A-1353, Grand Central Station, New York, N.Y. 10017.

Did you know . . .

Mr. and Mrs. Charles Brady and their winsome daughter Jane, a happy-go-lucky Irish family, ran a railroad boarding house in Jackson, Tenn. It was there in 1880 that a tall, lanky, taciturn, 16-year-old railroader named John Luther Jones first met Jane, whom he eventually fell in love with and married. His second name was that of a leader of the Protestant Reformation. Being a devout Catholic, Jane never used it but referred to her husband as "J.L." His death April 30, 1900, in the wreck at Vaughan, Miss., gave birth to the folksong *Casey Jones*. Many years afterward, the aged widow was asked if she remembered their first meeting. "Yes," she said. "J.L. just sat there eating and what impressed me most about him was his appetite."

Many people think that the first locomotive built by Matthias W. Baldwin in Philadelphia was *Old Ironsides* for the Philadelphia, Germantown & Norristown, a Reading Railroad antecedent, now part of Conrail. It wasn't. *Old Ironsides* was his first full-size road engine. Prior to that, however, in 1830 he created a small working model of a steam locomotive that was put into operation April 15, 1831, pulling two 4-seated cars around a circular track at Franklin Peale's Philadelphia Museum.

In 1858 Senator Stephen A. Douglas of Illinois, whose debates with Abraham Lincoln made political history, originated the idea of campaign trains—or "whistle-stoppers," as they were called later—by mounting a cannon on a flatcar at the end of his train and firing it to proclaim his arrival at a way station and thus attract crowds to hear him speak.

In 1860 Lincoln became the first Presidential nominee to tour the nation by rail to "see and be seen," as he put it. That started a practice which was followed by nearly all of America's Presidents and major-party Presidential nominees up to and including Dwight D. Eisenhower, until TV rendered it obsolete.

By sheer coincidence, both the first and the most recent train ride of a President of the U.S.A., neither of them whistle-stoppers, terminated at Baltimore, Md. The first was Andrew Jackson's 13-mile trip from Ellicott's Mills, Md., on the Baltimore & Ohio on June 6, 1830, the year the B&O was opened. The latest was Jimmy Carter's railroad journey from Washington's Union Station to Baltimore on Aug. 15, 1979. Carter's rail trip was tied in with his energy-saving program. It was intended to show, he said, that "Trains represent the future and not [only] the past in transportation in America." □

The Railroads: View from Wall Street

According to the Association of American Railroads, recently released rail freight traffic figures were off 7.7% overall while carloadings, at 439,813 cars, were 12.4% below the comparable week in 1979. Hardest hit of all rail shipments were autos, off a substantial 44.4%.

Wall Street railroad analysts in general have cooled in their enthusiasm for the major rail companies traded on the New York Stock Exchange. Earlier this year many brokerage firms were recommending purchases of resource-rich railroad holding companies such as Union Pacific Corp., Santa Fe Industries, and Burlington Northern, Inc. All three made all-time highs in February and the railroad group as a whole had the best first-quarter earnings in history.

Dennis Enright, head railroad analyst at Bache Halsey Stuart Shields, is perhaps the most pessimistic. As we go to press, Bache has a sell recommendation on all the major rail stocks. Enright expects a decline in earnings of every major carrier except Santa Fe, Southern, and UP. Long-term, he is bullish on railroad companies with a high natural resource exposure. Over the next 6-12 months, however, he warns that earnings in the industry may be disappointing, particularly in view of the recent steep declines in the forest products, auto and appliance sectors, although less freight hauled in these areas could be offset somewhat by strong coal and grain shipments in 1980.

Merrill Lynch Pierce Fenner & Smith, largest brokerage concern in the U.S., takes a more sanguine view. Although it remains neutral over the intermediate term, the firm's chief transportation analyst and v.p., Richard H. Fischer, feels that long-term, selected rails will benefit from an improving regulatory climate in Washington. That, he believes, will cause their stocks which currently sell at low price-earnings multiples to be more highly regarded by investors.

For the rest of 1980, Fischer expects shipments in the automobile and housing-related areas to be weak. Coupled with higher prices for fuel and increased labor costs (the latter may rise 11% this year), he foresees pressure on railroad operating margins with earnings declines for the group into the first quarter of 1981. Sharpest drops estimated are for Southern Pacific (which ships a lot of lumber and autos), from $6.67 per share in 1979 to $5.00-5.50 in 1980; Seaboard Coast Line Industries, $7.00-7.50 in '80 vs. $9.06 in '79; and Norfolk & Western, $5.25-5.75 in 1980 vs. 1979's $6.67. Merrill Lynch currently sees 1981 as a good year for rails, matching or exceeding 1979's strong performance.

A large private service sold directly to investors, The Value Line Investment Survey, believes the current recession will be the second worst in the postwar period, but not as severe as in 1973-75. It expects the recession to end in late 1980 or early '81. For the railroad group, Value Line thinks they will turn in a mixed performance, though better than most other industries. As of late July, the survey was positive toward railroads with a strong position in hauling coal and those with a diversified energy base.

Fitting into this category is N&W, with its profitable coal export business. European electric utilities lately have been buying U.S. coal, possibly in response to the world's high oil prices. Kansas City Southern Industries has also been benefitting from increased coal traffic to serve new coal-burning electric plants in areas served by the railroad; this may offset declines in recession-sensitive freight. Over the long term, according to Value Line, there's a chance KCS might also be the target of a merger or acquisition. In the Midwest, Soo Line has a strong position in hauling farm products such as wheat, barley, and sunflower seeds, so its exposure to a decline in industrial-based traffic is low. Earnings may be up 20% from 1979's $3.63 per share, but much of this gain already occurred in the strong first quarter and will not likely be matched for the rest of the year.

In addition, Value Line feels that Canadian Pacific Ltd. may benefit from the strong energy picture in western Canada which will generate a lot of long-haul business. Earnings may be up somewhat from the $7.06 achieved in 1979. Since Value Line Investment Survey's *Ratings and Reports* are sent out to subscribers weekly, however, the opinions they express may have changed by the time you read this.

All in all, 1980 is a difficult year for the nation's railroads; but several positive factors, such as increased coal production and rising energy prices (which make rail transportation more competitive) indicate that this industry will weather the storm and resume an upward path of growth at the recession's end.

The first New York Central electric locomotive being tested near Schenectady, N.Y., in 1904, when it was new. Until 1914, the railway's name was New York Central & Hudson river, hence the initials on the sides. This same locomotive would later bear four more road numbers: 3400, 3200, 1100, and 100. New York Central Railroad

The First New York Central Electric Locomotives and Their Background

by Roger Arcara

Mainline electric railway traction in North America has had its enthusiasts and its detractors during its mercurial history, which, as a practical matter, now extends back some 85 years. The electric locomotive engenders little interest from some railway hobbyists and historians, perhaps because of its relatively limited use within the overall expanse of the continent; perhaps because of the usual absence of the life-like appearance of the steam locomotive in action; or perhaps because it does not seem to play a part in the "romance" of railroad history.

Taking the opposite view, however, are those who point with justifiable pride to the efficient service rendered by electric locomotives under conditions imposed by heavy trains and intensive traffic, emitting comparatively little noise and no atmospheric pollutants, and permitting train service in tunnels and other close quarters where steam or Diesel operation would be intolerable.

The march of time has brought us to the point at which electric traction now has an interesting and respectable past. Indeed, the experimental stage began during the early years of the steam locomotive-engine: it is recorded that Thomas Davenport, of Brandon, Vt., built a miniature electrically-powered rail car and demonstrated its operation in 1835. In 1838, Robert Davidson operated an electric car which carried passengers at about 4 miles per hour on a track in Scotland. Moses Farmer's 18-inch gauge demonstration railway at Dover, N.H., used an electric locomotive to haul a two-passenger car in the late 1840's. Charles Page in 1851 operated an electric, passenger-carrying car on a railway near Washington, D.C.

Many others also tried experiments with electrical propulsion, none of which could succeed for lack of a proper supply of electricity. Primitive though their motors may have been by our standards, they *did* work; but they drew what current they could from crude chemical batteries, since the mechanical electric generator, or dynamo, had not yet been invented.

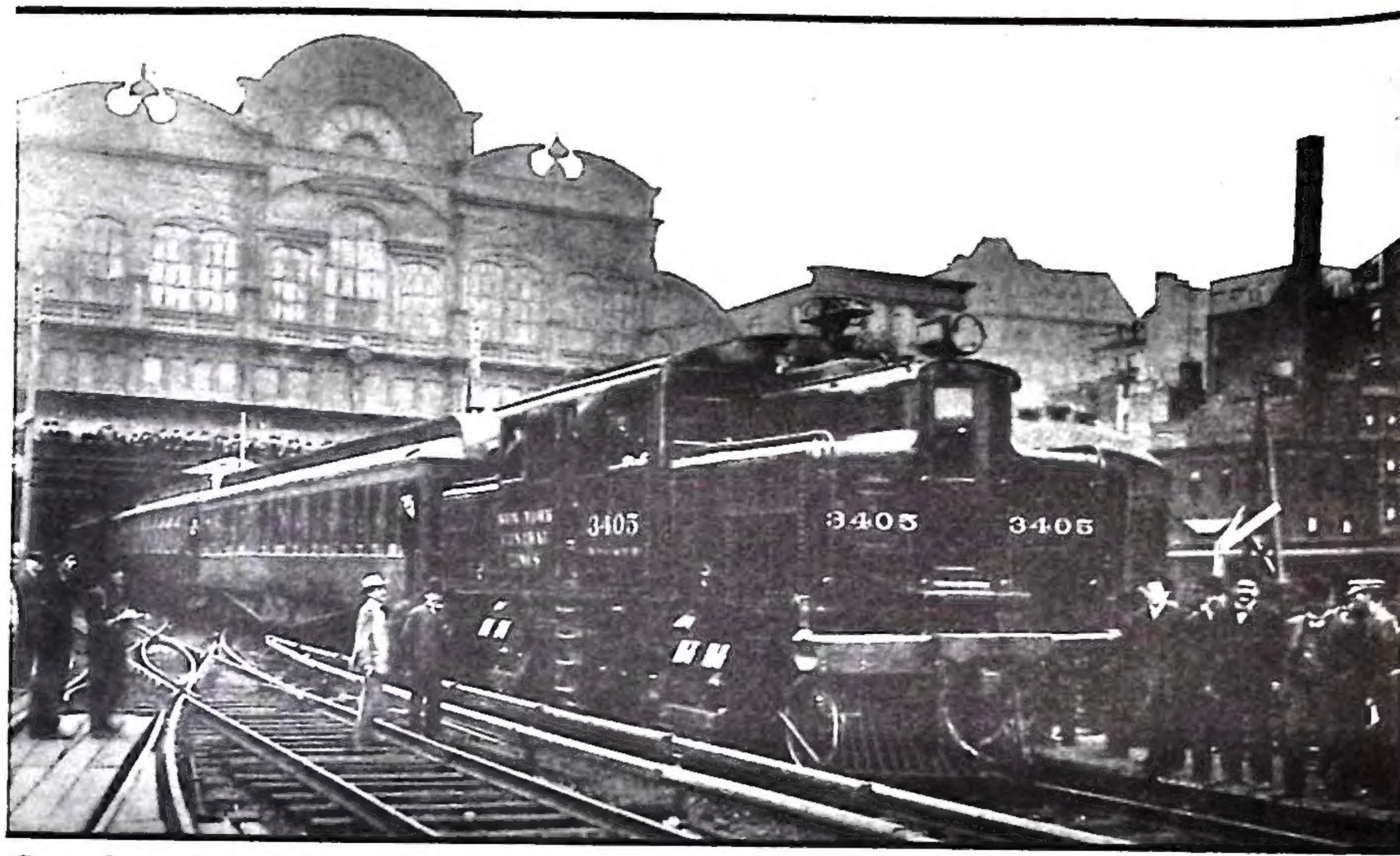
Battery current being insufficiently potent to make electric propulsion practical, the successful development of the electric railway had to await the discovery, in the 1870's, that mechanical energy could be converted to useful electrical energy by employing steam or water power to spin the rotor of an electric motor, thereby generating electricity to power other motors. Thus was born the dynamo, and, with it, the electrical industry. Refinements by numerous experimenters over the years made the application of electricity to useful purposes a reality.

Most of the attempts in the electric railway field in the 1870's and 1880's were aimed at increasing the speed, capacity, range and economy of urban streetcar lines by replacing horses and mules with electric traction. The story of the development of the trolley-car by such inventors as van de Poele, Field, Daft, von Siemens, Sprague, *et alii* has been told often elsewhere and need not be repeated here. The heavy electric locomotive evolved differently from the early technology of the trolley-car. The heavy capital investment necessary for installing and equipping railway propulsion by electricity has usually been a deterrent, so that most of the pioneer mainline electri-

fications were accomplished more as matters of necessity, made so by local conditions, than as optional alternatives to the steam locomotive.

To the New York, New Haven & Hartford Railroad goes the distinction of having the first commercially practical and successful railroad electrification in North America. Experiments with electric traction in the 1880's led to a direct-current installation on the Nantasket Beach Branch in 1895, soon followed by similar equipment of other New Haven Railroad lines in New England. These operations used locomotive coaches, in which a passenger car fitted with four powerful motors would draw a train of several ordinary steam-road trailer coaches. The multiple-unit system of electric train operation had not yet been invented, and the New Haven's alternating-current electrification of its mainline between New York and New Haven also was still in the future. But these early direct-current electrifications remained in use for quite some years.

Later in that year, the Baltimore & Ohio Railroad began operating its Howard Street Tunnel, in Baltimore, with electric locomotives. This tunnel, almost a mile and a half of steady upgrade from Camden Station to Mount Royal Station, would become badly filled with smoke, steam, and heat whenever a steam locomotive would draw a train uphill through it. The substitution of electric locomotives greatly improved its capacity and frequency of train operation by eliminating the pollution problem. The merits of heavy electric traction were thus amply demonstrated.

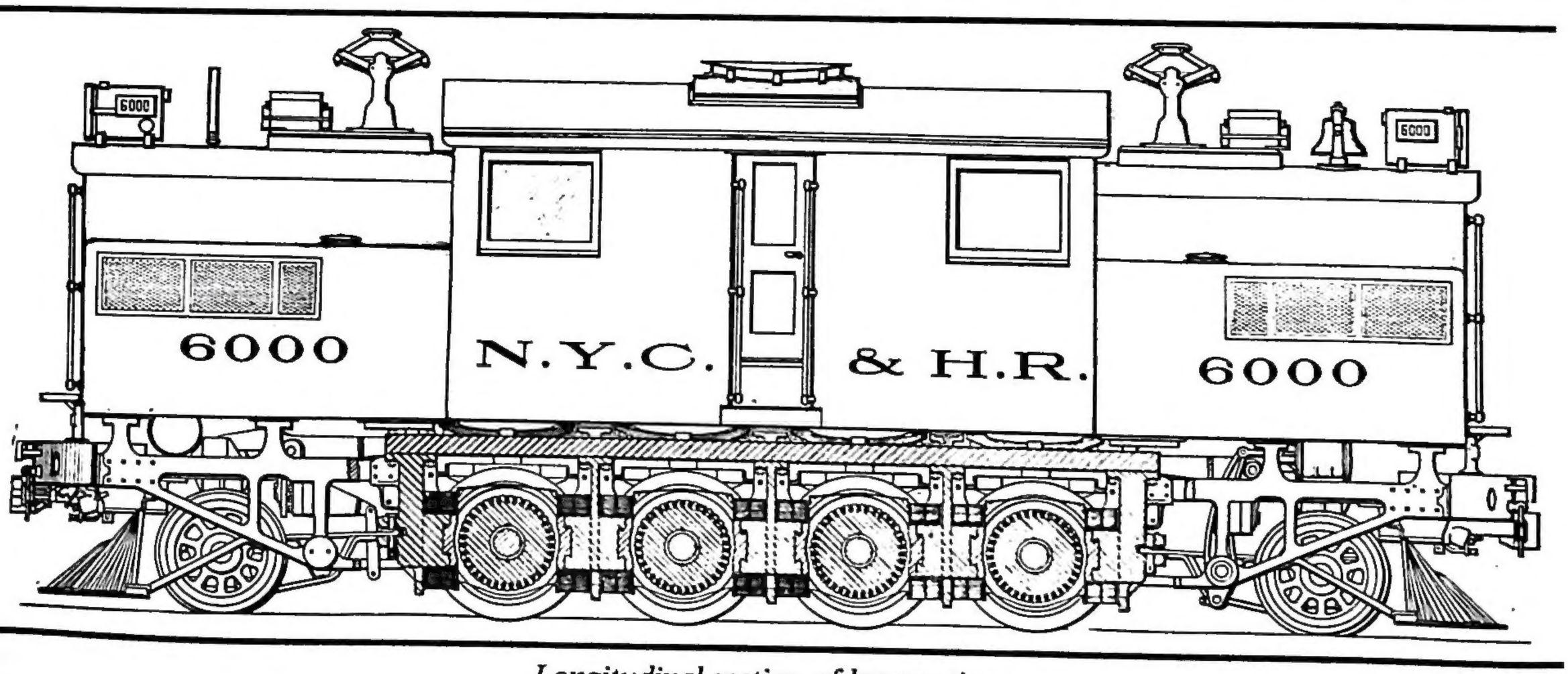


Crowds gathered beneath the great iron and glass trainshed to watch S-2 no. 3405 pull the first electric train out of the old Grand Central Station in New York City on Sept. 30, 1906.

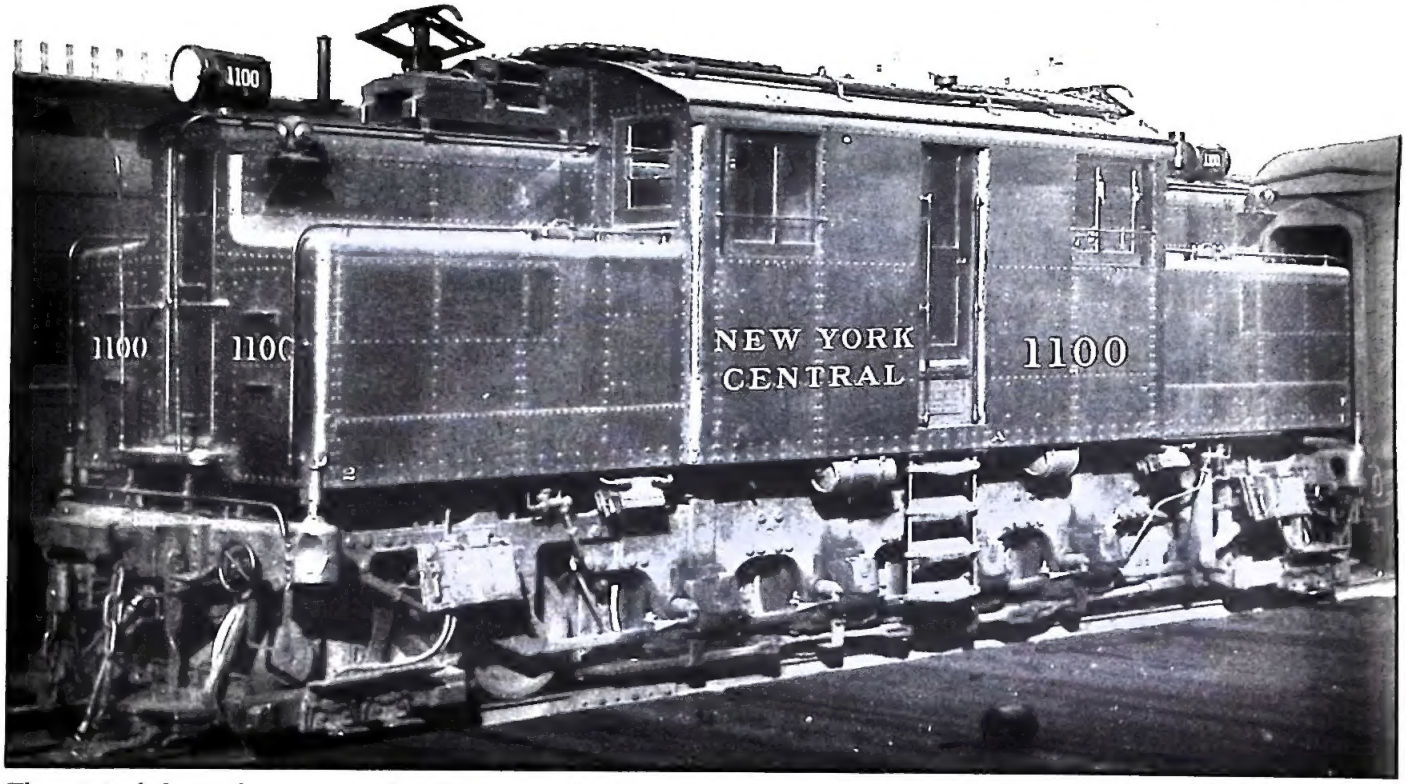
New York Public Library

A similar situation, but on a much larger scale, prevailed in New York City. The original Grand Central Depot, used by the New York Central & Hudson River Railroad, the New York & Harlem Railroad, and the New Haven Railroad, had been opened in 1871 at 42nd Street, then away uptown and with plenty of room around it for yards, roundhouses, turntables, ash pits, service tracks, ready tracks, and other facilities attendant to any major steam locomotive terminal. The name of the new station soon proved prophetic, for the city rapidly expanded northward to meet and surround it. With the demand for more and longer trains and for ever-larger locomotives to pull them, the many acres of smoky engine service facilities and yards became a nuisance in the midst of the burgeoning city. Moreover, the smoke conditions in the Park Avenue Tunnel, leading to the terminal from the north, had become a severe health hazard as well as obstructing the engine-drivers' view of the signals.

As the B. & O. tunnel installation had shown, the solution to this vexatious problem lay in electrification. The result was the eventual installation of a direct-current third-rail system on all of the New York Central's lines in the New York City area, save only the Putnam Division, whose



Longitudinal section of locomotive



The original electric locomotive, class S-1, as seen in 1933, after the 4-wheel bogie trucks and footboards had been fitted. Originally No. 6000, then 3400 and 3200, this 1904-built engine would be renumbered 100 a few years later.

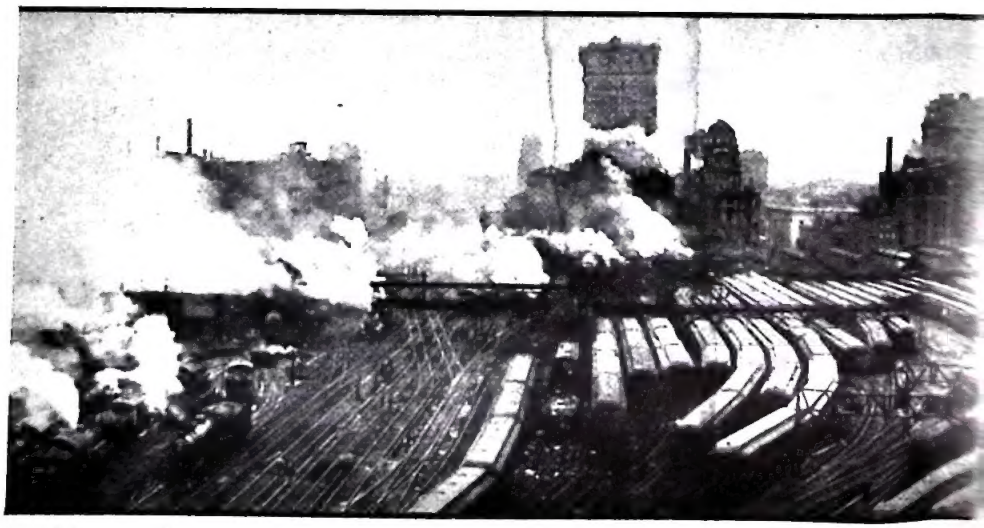
William Lichtenstern photo from George Votava

trains did not enter Manhattan Island after 1916.

A wreck in 1902 in the Park Avenue Tunnel, attributed to the aforementioned smoke conditions, led to legislation which required electrification of the tunnel and the Grand Central trackage by 1910. The actual electrical installation was in partial operation in 1906, with completion soon thereafter, well before the legal deadline. The capital necessary to finance this electrification was well-invested, for it made possible the greatly expanded new Grand Central Terminal, opened in 1913, with the formerly open pit of steam-operated trackage more than doubled in size, yet completely covered by a complex of remunerative office buildings and hotels constructed right over the electrically-operated terminal tracks in the heart of midtown New York City.

William J. Wilgus, the remarkably capable Chief Engineer of the New York Central & Hudson River, designed the installation and the equipment. In those early days of heavy electric traction, when technology stressed durability and simplicity in order to assure reliable operation, Wilgus had rather little to draw upon for guidance other than the New Haven and the B.&O. electric installations previously mentioned. Yet, he devised a system of current distribution and utilisation which would stand the tests of time and of increasingly heavy operational demands, perhaps more of a success than could be expected of any pioneer in what was then a rather new field. The locomotives developed to draw the trains by amperage rather than by steam pressure became classics of design, both for their individuality in an era when inventors were expected to be individuals, and for their longevity when compared to the steam locomotives they supplanted and to the later electric locomotives which some of the S-class engines outlasted.

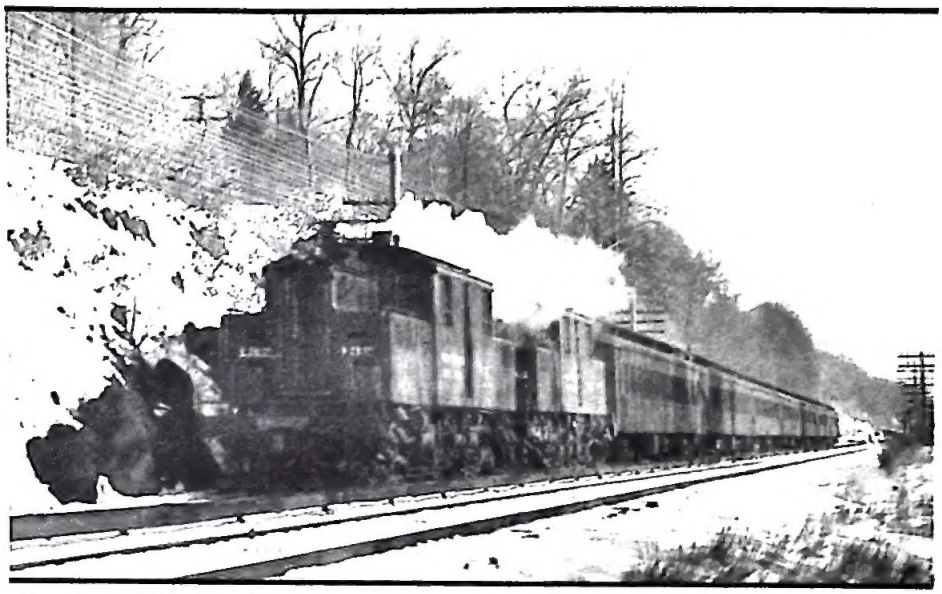
No standard types of traction motors or controls then existed, nor were there conventional formats for their disposition on a locomotive-engine. Wilgus had to design the new motive power from the wheels up. For mechanical simplicity, efficiency, and durability, the four rather small but powerful motors were of the gearless bipolar type, having the armatures on the driving-wheel axles, each set



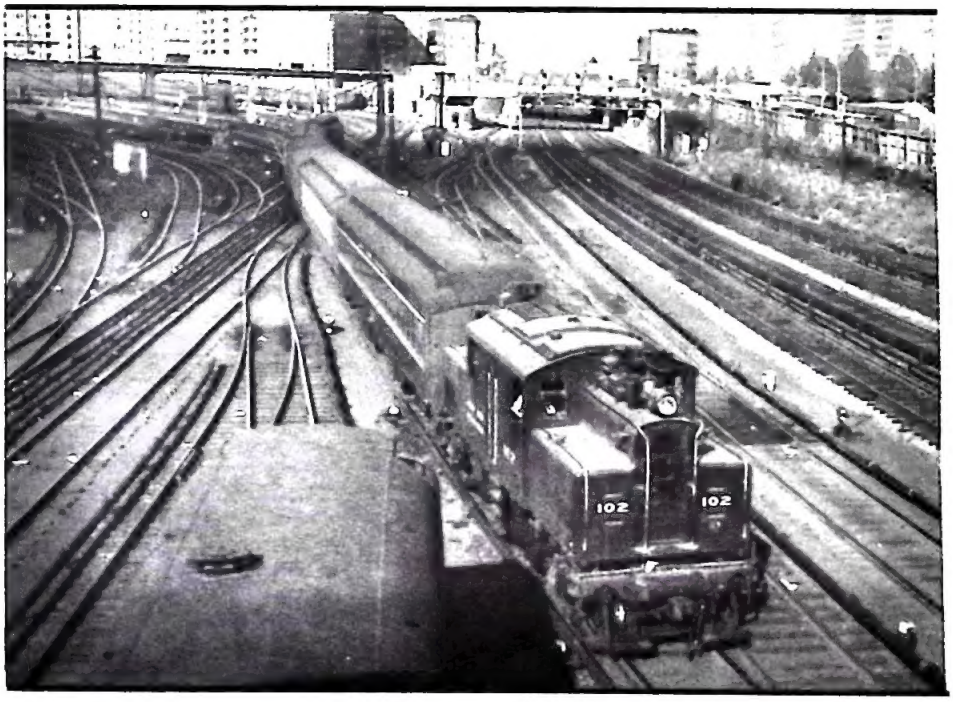
Looking south across the maze of tracks leading to Grand Central Station, as it was then called, in 1906. Smoke conditions and increasing traffic led to use of electric engines to pull trains. Area shown is now covered by Park Avenue office buildings.

New York Public Library

between a pair of flat-faced field poles mounted on the engine truck. These armature-axles could move up and down in the spaces between the field poles according to the irregularities of the track. Each armature-axle, complete with its pair of 44-inch driving-wheels, weighed about 5½ tons. This may seem like a good deal of unsprung weight, but it was actually less than the weight of a wheel-and-axle set of many a large steam locomotive of the day. The absence of any need for counterbalancing plus the lack of dynamic augment due to the avoidance of reciprocating parts in the design probably compensated for any tendency toward rough tracking. The constant-torque characteristic of electric motors, compared to the intermittent torque of normal two-cylinder steam locomotives, also contributed to smoother operation at speed and to more rapid acceleration. Ease of maintenance was built into such a design: an armature-axle could be removed simply by lowering it into a drop-pit, and a new or overhauled unit easily put in its place.



A pair of S-3's doublehead a southbound Harlem Division train near Scarsdale, N. Y., on Feb. 17, 1940. Two engineers were needed when doubleheading, since these locomotives were not equipped with multiple-unit controls. Vapor from the steam-heat boilers built into S-3 types is clearly visible. George Votava photo



No. 102, class S-2, is seen here drawing a train southbound out of Mott Haven Yard towards Grand Central Terminal in 1964. Road service was not uncommon for the S-motors in later years, but the majority of their time was spent in this type of operation. Harold K. Vollrath photo

The first such locomotive, built in 1904 by the American Locomotive Company at Schenectady, N.Y., in conjunction with the General Electric Company of the same city, had a 1-D-1 wheel arrangement and weighed 95 tons. It was conservatively rated at 1,695 horsepower, though it could briefly exert more power at times, since electric traction motors are usually designed to withstand overloads for short periods of time, such as when accelerating a heavy train from a stop. Extensively tested on a track especially fitted for it near Schenectady, it attained 63 miles per hour with an eight-car train weighing 336 tons, and 72 m.p.h. with a four-car train weighing 170 tons. Drawing the eight-car train, the new locomotive reached 30 m.p.h. in one minute on level track, a respectable performance for that era.

The results of thorough testing proved the design so satisfactory that 34 more engines of virtually identical design were ordered from Alco-G.E. Delivered in 1906, each was equipped, as was the prototype, with third-rail shoes for drawing current from the Wilgus-designed underrunning third rail mounted outside and above the running-rails, and with a pair of small, pantograph-type trolleys on top to collect current from overhead power rails mounted above the trackways at long gaps in the third rails, such as at complicated turnouts. (All subsequent electric locomotives designed for operation in the Grand Central service would be similarly equipped for overhead current collection.) They were placed in service as the reconstruction of Grand Central was under way and as tracks were made ready for them. Originally, the electrics drew trains as far as High Bridge on the Hudson Division and Williamsbridge on the Harlem Division; however, within a few years, the third rails were extended to Harmon and North White Plains, respectively.

At about the same time as these electric locomotives were being developed, satisfactory designs for steel passenger cars were being evolved, which would eventually replace the wooden cars then in service and with which the S-1 had been tested. Thus, not long after the S-1 and its 34 duplicate S-2's went into service, they were called upon to pull much heavier

A 6-car train southbound on the Harlem Division near Scarsdale, N.Y., was headed by S-3 No. 135 on Feb. 17, 1940. George Votava photo

loads than they had been designed for. This was due to a combination of the greater weight of the steel cars and the longer trains demanded by the burgeoning passenger traffic of the expanding city and made possible by the increased capacity of the new Grand Central Terminal. It is to the credit of Wilgus and his staff that his combination of current distribution and locomotive design had enough reserve capacity to cope with these increasing demands, though the longest trains of steel cars usually required double-heading in order to maintain service schedules.

Once in full operation, the S-class locomotives proved eminently satisfactory and were destined for long and useful lives with only one major modification. Some uncertainty about the tracking characteristics was soon resolved by a derailment attributed to the two-wheel pony trucks at the Woodlawn junction with the New Haven Railroad in 1907. The two-wheel Bissell-type trucks were forthwith replaced by four-wheel bogie trucks. To make room for them, the cowcatcher-style pilots were removed and footboard pilots protruding from the ends of the main frames were fitted. The weight of the engines was thus increased to about 115 tons each.

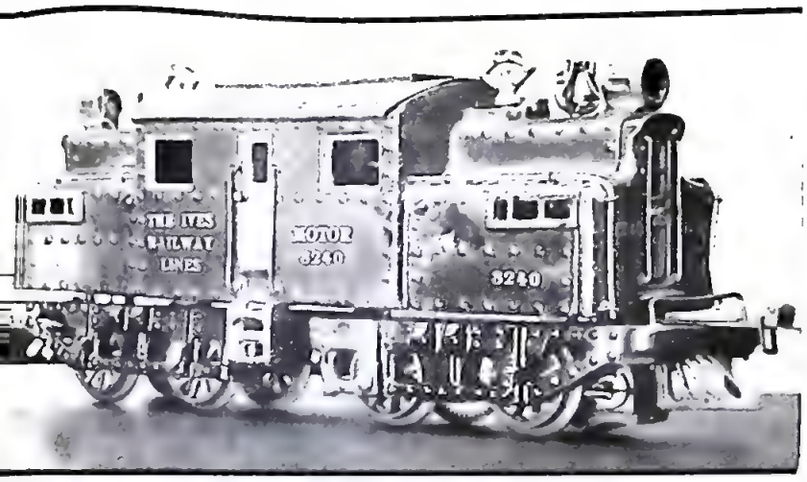
More locomotives of similar design were soon required, so 12 new ones, with four-wheel pilot trucks, were built in 1908-09. These class S-3 locomotives had longer frames and weighed more than their predecessors, but were otherwise much the same except that each was fitted with a train-heating boiler. The S-1 and S-2 engines lacked this feature, since the fairly short distances between Grand Central and the engine-change sites were not originally thought to require them. However, the new steel passenger cars did not retain heat as well as the wooden cars they replaced, and short heater-cars eventually were built for cold-weather use with those electric locomotives used in passenger service but not fitted with boilers.

Longer trains and faster schedules soon called for even more powerful electric locomotives, and, beginning in 1913, the S-class cab-and-hood types were supplemented by the T-class box-cab engines, about which more in another article. The S-class engines were not banished from the road, by any means, but many of them ultimately found most of their active time being spent in Mott Haven Yard service. This facility, in The Bronx, about 5 miles north of Grand Central Terminal, was an enormous new passenger-train yard built to replace most of the car service and storage tracks in the old Grand Central area. Long-distance trains arriving at the new terminal would be emptied of passengers and then towed northward to Mott Haven, where cars would be marshalled and serviced, then made up into new trains and hauled back to Grand Central for their departure times. Most of these movements would be handled by the S-class engines, since the good low-speed torque provided by their gearless, slow-revolving motors made them well-suited for such chores.

A typical S-3, No. 1144, originally 3244, seen at Harmon in August, 1936. These locomotives were built with longer frames than their predecessors, and had 4-wheel pony trucks as original equipment. The smokestack from the oil-fired steam-heat boiler is visible on the roof. Harold K. Vollrath photo

Though the S-class electric locomotives operated only in the New York Central's comparatively short electric zone, and could not be seen elsewhere, their countenance was destined to become one of the most widely known of all railroad motive power. The New York Central System was famous even far from its own territory, and its noted trains and locomotives were much illustrated and written about in magazines and books. The successful S-class locomotives soon came to be popularly representative of the electric locomotive as a type, familiar even to the many who never saw them at first hand.

There was another reason for the fame of the cab-and-hood configura-



Many toy models of the S-class were made by various toy-train manufacturers during the first 35 years of this century. This cast-iron Ives No. 3240, made for No. 1 gauge track (1¾"), probably looks more like its prototype than any other toy engine. Photo by the author

Having passed through Penn Central ownership and now the property of Conrail, former S-2 No. 115, now 4715, is still in service. It is seen here switching cars around the upper level of Grand Central Terminal in August, 1980, at age 74. Photo by the author

tion of the S-class engines. At about the same time as heavy electric traction was being developed to a practical extent, in the late 1890's and the early 1900's, a parallel development was taking place in miniature: the toy electric train was making its appearance. There had been small live-steam and clockwork-powered model trains made and sold in the Nineteenth Century, but the drawbacks of operation limited their market. However, small electric motors useful for home appliances, either from battery current or from house mains as more and more urban buildings were electrified, found ready acceptance just around the time the S-types were being designed, and the toy electric train, in what now seems like very crude form, had created a new and expanding market in the early 1900's.

Since the New York Central electric engines were of the latest design at that time, and since the prevailing opinion in those days seems to have been that toy *electric* trains should look like real *electric* trains, the unique S-class appearance was widely promoted by the toy train manufacturers of the era. Such firms as Ives, Lionel, Voltamp, Dorfan, Bing, and others made, in the aggregate, hundreds of thousands—perhaps millions—of toy locomotives of various sizes representing the New York Central's S-types. Some were fairly good models, others were crude perversions of the actual appearance. Some had only 4 or 6 wheels, some had 8 or 12. Some versions were small and cheap, others were large and costly, but almost all were sold nationwide, and in Canada, South America, and Europe, as well. The toy trains companies made miniatures of other types of electric locomotives, to be sure, but the S-type continued to have wide popular appeal for years after larger and more powerful electrics had appeared. Several generations of boys in much of the world thus came to regard the New York Central's S-class as the archetype of electric locomotive design, albeit the class comprised only 47 members, all confined to two lines extending northward from New York City for less than 30 miles. Certain versions of S-type toy locomotives were still being offered for sale in the middle 1930's.

This brief account of the New York Central's pioneer electric engines might be brought to an expected conclusion if the date of the very last use of one could be recorded, but that time has not yet been reached. Though all of the S-3's have been scrapped, and the S-1 has been preserved privately, several S-2's remain in storage at Harmon, and one, now bearing Conrail number 4715, is still active as this is written (late August, 1980), being used to shunt trains of locomotive-drawn coaches around the maze of tracks in Grand Central Terminal, which it exceeds in age! Having attained 74 years, it may or may not be with us much longer: time may be running out, for replacement parts are understandably difficult to obtain for any machine nearly three-fourths of a century old. The simplicity and durability of the parts comprising the design, compared to modern electric locomotive complexity, probably account for its longevity. The rather little maintenance required by this rolling septuagenarian, in contrast to the many troubles besetting its overly sophisticated descendants of more recent origin, may serve as an outstanding example of the merits of simple, durable, straightforward motive power design. Unfortunately, in this era of technological complexity and conformity, we probably shall not see its like again. □

Class S-1: Weight as modified with 4-wheel trucks, 234,000 lbs. Height, 13'8". Lenght, 38'9". Built in 1904. Road numbers: orig. 6000; renumbered in 1905 to 3400; in 1907, to 3200; in 1913, to 1100; in 1936, to 100.

Class S-2: Weight as modified with 4-wheel trucks, 227,700 to 229,900 lbs. Height, 13'8". Length, 38'9". Built in 1906. Road numbers: orig. 3401 to 3434; renumbered in 1907 to 3201-3234; in 1913, to 1101-1134; in 1936, to 101-134; under Penn Central, to 4701-4734.

Class S-3: Weight, 249,800 lbs. Height, 13'8". Length, 43'1½". Built 1908-09. Road numbers: orig. 3235 to 3246; renumbered in 1913 to 1135-1146; in 1936, to 135-146.

The author gratefully credits Edward May, William Edson, Harvey Roe, and Louis Hertz for much of the information in this article.

Roger Arcara, a former assistant editor of Railroad Magazine, *is the author of* Westchester's Forgotten Railway, *the story of the New York, Westchester & Boston. Mr. Arcara is considering writing a follow-up article for this magazine on the T-class motors.*

Famous North American Railroad BRIDGE DISASTERS

by Carl Loomis

A contemporary artist's conception of the Ashtabula bridge disaster of 1876, showing engine Columbia *and wooden coaches. Over 80 perished.*

A THICK SNOWSTORM blanketing the Lake Shore & Michigan Southern on December 29, 1876, delayed the doubleheaded *Pacific Express* at Erie, Pa., for two and a half hours. On board were at least 170 passengers and a large crew. The train consisted of diamond-stacked 8-wheelers *Socrates* and *Columbia* and 11 wooden cars: four baggage, mail, and express cars, one smoker, two coaches, a drawing-room car, and three sleepers, in that order, the last seven being open-vestibuled. Two pusher engines that helped to start the train through mounting snowdrifts were cut off just beyond the depot.

At 6:35 that night the express, now three hours late, reached the double-tracked iron bridge that spanned a deep ravine and creek about 1,000 feet east of the depot at Ashtabula, Ohio. This Howe truss, 11 years old, was elevated 69 feet above the ravine floor, with a solid masonry abutment at each end. Its entire length could have held only both locomotives and two cars, so that when the wheels of leading engine *Socrates* rested on the far abutment none of the cars, including all those which held passengers, could have reached the eastern end.

As that engine entered the bridge its frightened engineer, elderly Dan McGuire, heard an ominous cracking noise and felt as though he were "running uphill." He widened the throttle. The *Socrates* leaped forward. At that instant the bridge fell with a tremendous crash, but his engine and its tender just barely catapulted to safety, snapping the drawbar that coupled it to the *Columbia.*

Within seconds, the rest of the train tumbled into the chasm, into snow waist-deep, breaking the ice that encrusted the creek and drowning a few passengers. At the same time it overturned stoves that heated the cars, igniting the wreckage into a funeral pyre. McGuire waded through snow down the steep embankment and rescued his fellow engineer, "Pap" Folsom of the *Columbia,* then joined other crew members and townspeople in doing what he could for the moaning, screaming victims. One hero, a black porter named Seward, broke a car window, crawled out through it, and smashed successive windows as he went along, freeing passengers.

The Rev. Philip A. Bliss, nationally known evangelist and writer of hymns, including "Hold the Fort for I Am Coming," which is popular even today in some Sunday schools, extricated himself from a wrecked coach and tried to save his wife from the on-sweeping fire. Eye-witnesses, unable to assist them, heard her plead: "Please go, Philip! You have a great work to do. I'll be waiting for you in Heaven." But he wouldn't leave, and died with his wife in a sheet of flame. At least 80 persons were killed, scores injured.

When gray morning dawned, nothing was left in the ravine but the icy creek, churned-up snow, and a charred mass of car trucks, brake-rods and tangled bridge-iron, with the upturned *Columbia* near the west abutment.

The death of Commodore Cornelius Vanderbilt, aged president of the Lake Shore road, four days later, is believed to have been hastened by the terrible news and public criticism. An Ohio legislative committee attributed the wreck to faulty bridge construction. The defects, their report said, "could have been discovered at any time after erection by careful and analytical analysis." The bridge's designer and builder, Joseph Tomlinson, laid the blame on extreme cold having made the braces brittle. Then, deranged by the catastrophe, he shot and killed himself.

ANOTHER bridge disaster which featured the name of a noted evangelist and was somewhat similar to the Ashtabula wreck occurred on the night of January 7, 1878. A large

party of excursionists were returning by a doubleheaded 10-car special train on the Hartford & Connecticut Western from a revival meeting conducted by the Rev. Dwight L. Moody at Hartford, Conn. Half a mile west of Tariffville, Conn., the railroad crossed the Farmington River, which at that time was bridged by a Howe wooden truss.

After only seven years of use, the bridge was still apparently sturdy and well built. But it gave way as both locomotives passed over the trestlework, dropping the second engine and four cars ten feet into the ice-covered river. The bridge collapsed because that engine, derailed in some way, had severely jolted the wooden structure. No fire added to the scene's horror, but 13 persons were crushed to death or drowned, 33 others injured.

The deadliest bridge disaster on this continent happened on a mild starlit night, June 29, 1864, on an iron bridge that spanned Canada's Richelieu River between Beloeil and St. Hilaire, about 27 miles northwest of Montreal. Paralleling the river on the Beloeil side was a canal leading to Lake Champlain. The iron span was a combination bridge over the river and drawbridge over the canal. At 1:15 a.m. the draw was open for the passage of a string of barges in tow. A red light was hung on the swing span, but woods and a curve obscured it from the view of Bill Burney, an experienced Grand Trunk engineer unfamiliar with that division. Bill was pulling a trainload of several hundred immigrants just landed at Quebec and bound for Montreal. He sped onto the bridge without slowing down.

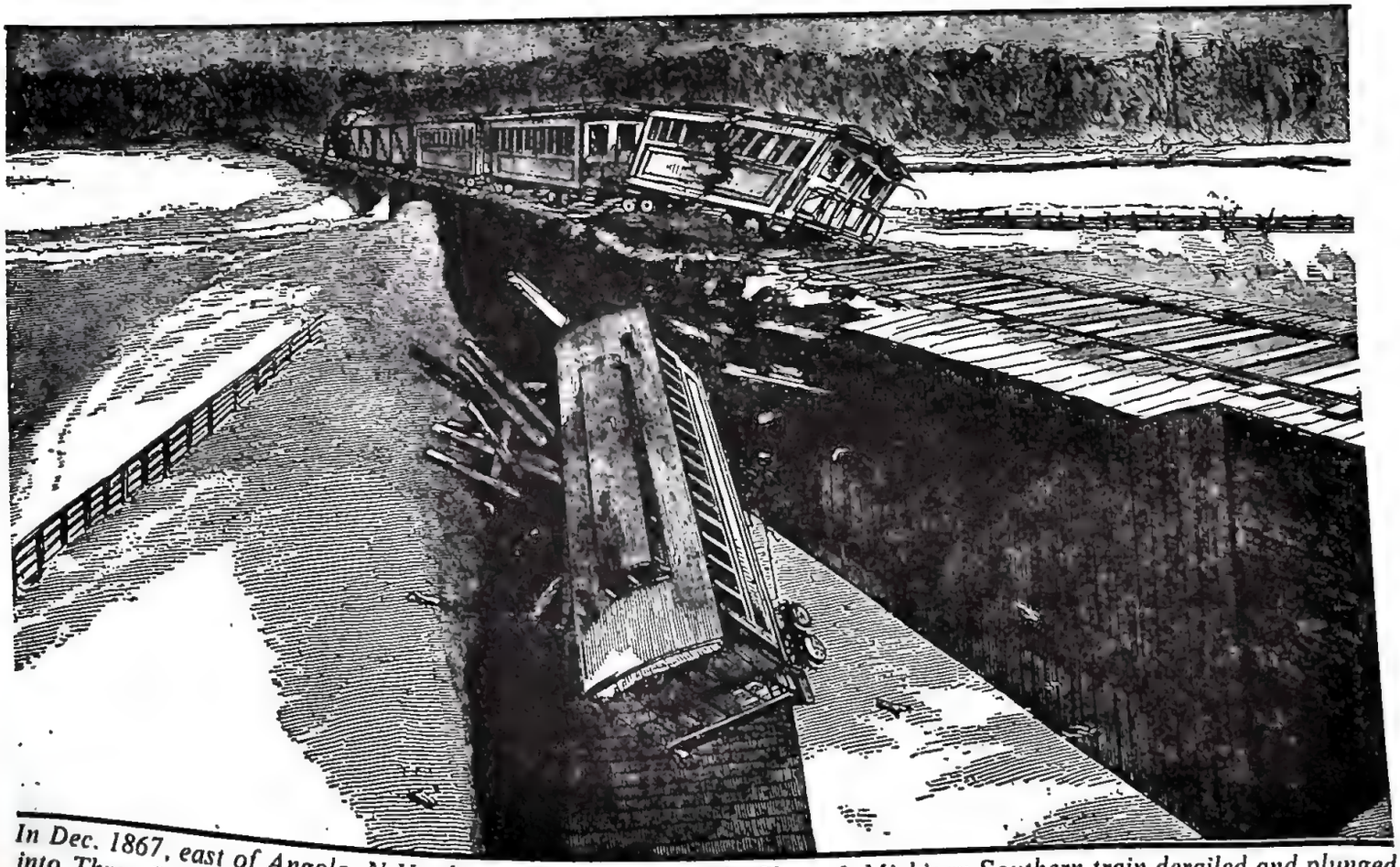
His locomotive plunged through the open draw. It fell 45 feet onto one of the barges, sank the barge and dragged down the railroad cars. About 86 persons perished, including the fireman, conductor, and brakeman. The canal being only ten feet deep kept the cars from being entirely submerged, which lowered the death toll. Like the Ashtabula bridge designer, Burney lost his mind from brooding over the wreck, though he did not commit suicide.

Another open draw sank a train May 30, 1890, into San Antonio Creek near Oakland, Calif., on the narrow-gauge South Pacific Coast Railroad. Bridge tender James Dunlop had warned the oncoming train, as usual, by hoisting a red flag above the draw, but this method did not give a distant warning. The engine and one car fell into the water, taking 13 lives, while another coach teetered on the brink, terrifying its passengers. Immediately after the accident, the engineer and fireman fled, never to be seen again in that area.

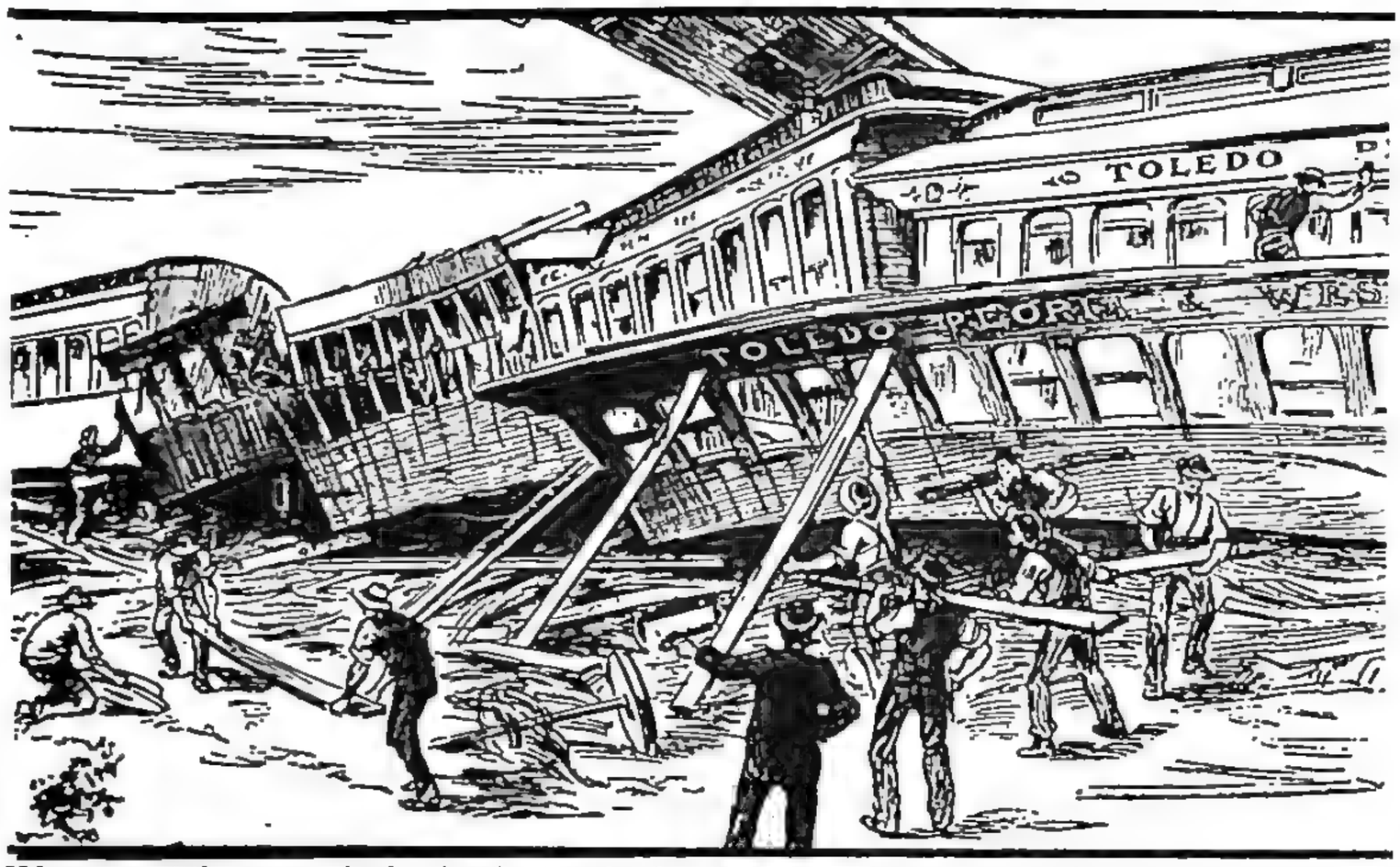
An axle snapped on a New York Central & Hudson River mixed freight, night of February 6, 1871, on the 200-foot pileway drawbridge over Wappinger Creek near New Hamburg, N.Y., ditching an oil car. With no watchman on duty there, the second section of the five-car *Pacific Express* rammed into it, killing at least 21 crew men and passengers. Sleighing parties for miles around held a morbid picnic at the scene.

Among other rail wrecks at drawbridges: Great Western train fell into Des Jardines Canal near Toronto in 1857, 60 dead. Oregon City streetcar at Portland in 1881, 33 dead. Cleveland streetcar in 1885, 13 dead. Pennsy train at Atlantic City, N.J., in 1906, 57 dead. (This was a derailment on a drawbridge, not an open draw.) Jersey Central train in 1958 at Newark Bay, N.J., 48 dead.

Most fatal pile-ups on railway bridges or trestles were due to collapsed spans. America's worst one occurred August 10, 1887, at Piper City, Ill., nearly two miles from Chatsworth, on the Toledo, Peoria &



In Dec. 1867, east of Angola, N.Y., the rear two cars of a Lake Shore & Michigan Southern train derailed and plunged into Three Sisters Creek. Most of the 43 fatalities were caused by fire from rear car's coal stove, which broke apart.



Clearing up the wreckage near Chatsworth, Ill., after the trestle disaster of Aug. 1887, was a particularly unpleasant task for Toledo, Peoria & Western wrecking crew, since many of the dead passengers were found in the telescoped cars.

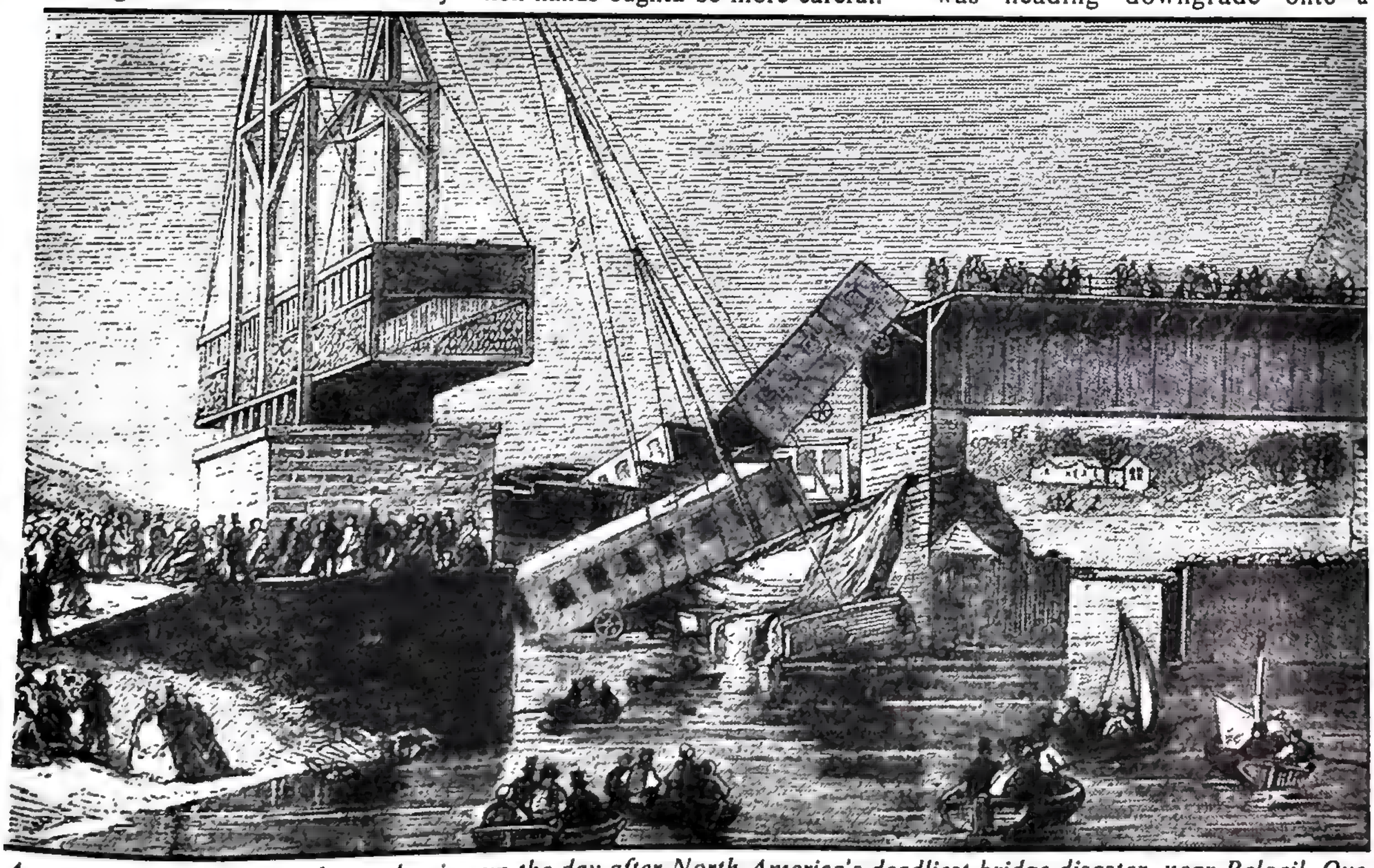
Western. That road, in bad physical and financial shape, sold cheap excursions to meet its payroll. The trestle responsible for the wreck was little more than a culvert, 15 feet long, spanning a dry creek bed and buttressed by a timber wall at each end.

An excursion from central Illinois to Niagara Falls, N.Y., was bargain-priced at $7.50. The train, which was doubleheaded, had a consist of six sleepers, two chair cars, five coaches, a baggage car, and General Superintendent E.N. Armstrong's business car. The engines were Nos. 2 and 15. They left Peoria eastbound at 8:00 p.m., an hour and a half late, and were further delayed by way stops to pick up more passengers, of which the total number was about 960. The train was overcrowded; many stood in the aisles.

Despite the bumpy roadbed, they covered the six miles from Forest to Chatsworth in seven minutes and highballed out of Chatsworth at 11:15 p.m. Just ahead, one fireman glimpsed tiny flames near the trestle, but his engineer said: "Only a few dry leaves burning beside the track. Those section hands oughta be more careful."

Too late, they saw the trestle itself burning. The engineer on No. 15, the control engine, reversed and signaled "down brakes." But the train rushed into a pit of flames. No. 2, the lead engine, safely crossed the fire-weakened trestle, which ditched No. 15 and turned the first nine cars into a gory mass. The tenth car, a sleeper, stopped with its forward end on the burning timber. The second sleeper telescoped it. At least 82 persons perished. In the darkness, thugs robbed dead and injured victims.

On Christmas Eve, 1872, a Buffalo, Corry & Pittsburgh train, heading northbound, consisted of the 4-4-0 woodburner *N.P. Bemis*, a mail-baggage carload of Yuletide mail and gifts, and a coach taking most of its 38 passengers home for the holiday season. It had rounded a curve and was heading downgrade onto a



A contemporary drawing shows clearing up the day after North America's deadliest bridge disaster, near Beloeil, Que., June 29, 1864. Grand Trunk train was carrying 550 passengers, mostly Norwegian, German and Austrian immigrants.

(Above) Some of the destruction unleashed as result of the Johnstown, Pa., Flood of 1889. Much of wreckage piled up and later burned at Pennsylvania Railroad bridge at Johnstown.

wooden trestle that spanned a gulch. The tender's rear truck jumped the rails, breaking its drawbar and toppling both cars into the snow-filled gully 20 feet below. Engineer Joe Haire stopped the *Bemis* safely on the far side. The tender rested precariously on the trestle's edge. Coal stoves that heated both cars set them afire. An ox sleigh hauled the 18 dead victims to a freight house for identification.

Most of the nearly 2,500 people who perished in the Johnstown, Pa., flood of May 31, 1889, died in the debris that swept down Conemaugh River and set up a barricade as high as a three-story house at the Pennsylvania Railroad's bridge of solid masonry, a new seven-arch structure said to have been America's most graceful arch bridge. The dam formed there piled up wreckage that caught fire and burned for three days and nights.

Among the spectacular train wrecks at bridges were those on the Pacific Railroad of Missouri at Gasconade River, Mo., in 1855, 22 dead; an Ohio & Mississippi military train in 1861 at Huron, Mich., 28 dead; Louisville & Nashville in 1865 at Reynolds, Tenn., 35 dead; Naugatuck Railroad in 1887 at flooded Thomaston, Conn., 24 dead, and a Boston & Providence bridge failure in 1887 at Roslindale, Mass., 24 dead. A street railway bridge wreck at Victoria, B.C., ended 54 lives. A trolley derailment on a Bridgeport, Conn., bridge in 1899 had 25 fatalities.

One disaster gave birth to a folksong, "The Wreck of the Old 97." That one happened September 27, 1903, to fast mail train No. 97 that the Southern was operating between Washington, D.C., and Atlanta, Ga. Joe Broady sat at the throttle of 10-wheeler 1102. According to the song, "He was goin' downhill at ninety miles an hour" when the train plunged off wooden Stillhouse trestle near Danville, Va., and Broady "was found in the wreck with his hand on the throttle and a-scalded to death with the steam." Ten or 11 other persons also were killed and seven postal clerks injured.

Further details on bridge disasters may be found in three books: *Railroad Accidents,* by Charles F. Adams, Jr., G.P. Putnam's Sons; *A History of Railroad Accidents, Safety Precautions, and Operating Practices,* by Robert B. Shaw, self-published, and *Train Wreck!,* by Wesley S. Griswold, Stephen Green Press. □

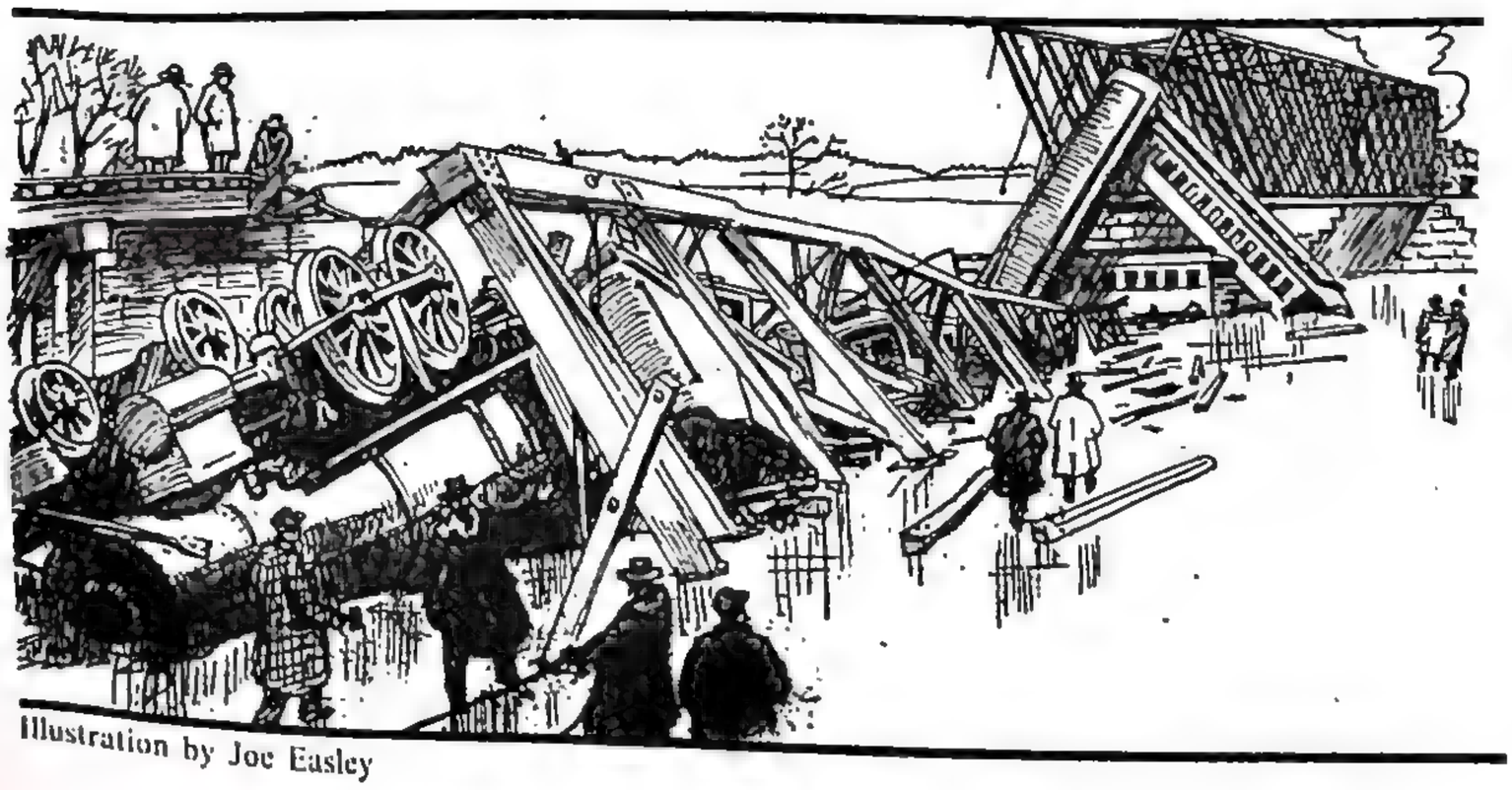


Illustration by Joe Easley

A derailed engine was the cause of a wreck on the bridge spanning the Farmington River near Tariffville, Conn. Train carried excursionists returning from a revival meeting.

Photos of the Rails

Union Switch & Signal Co.

(Above) Cincinnati Union Terminal erected by the city in 1933 as one of the last architecturally-great railroad depots built anywhere, will not be razed, as had been threatened. Instead, it was leased to a real estate developer for use as a shopping mall and entertainment area. No train has approached this edifice since 1972, when the final few passenger trains still serving the city were shifted to a modest jerry-built station outside town. Photo was made on a rainy night.

Photographed by Lucius Beebe

(Right) St. Johnsbury & Lake Champlain Consolidation No. 40 hauls lone coach through deep cuts and over high fills on the downgrade into St. Johnsbury in rural northern Vermont.

Canadian Pacific premier passenger train The Canadian *heads for meet near Banff, Alberta, in shadows of towering Sundance Mountains in Canadian Rockies.*

Photograph by Nicholas Morant, Box 1288, Banff, Alta., Canada TOL OCO

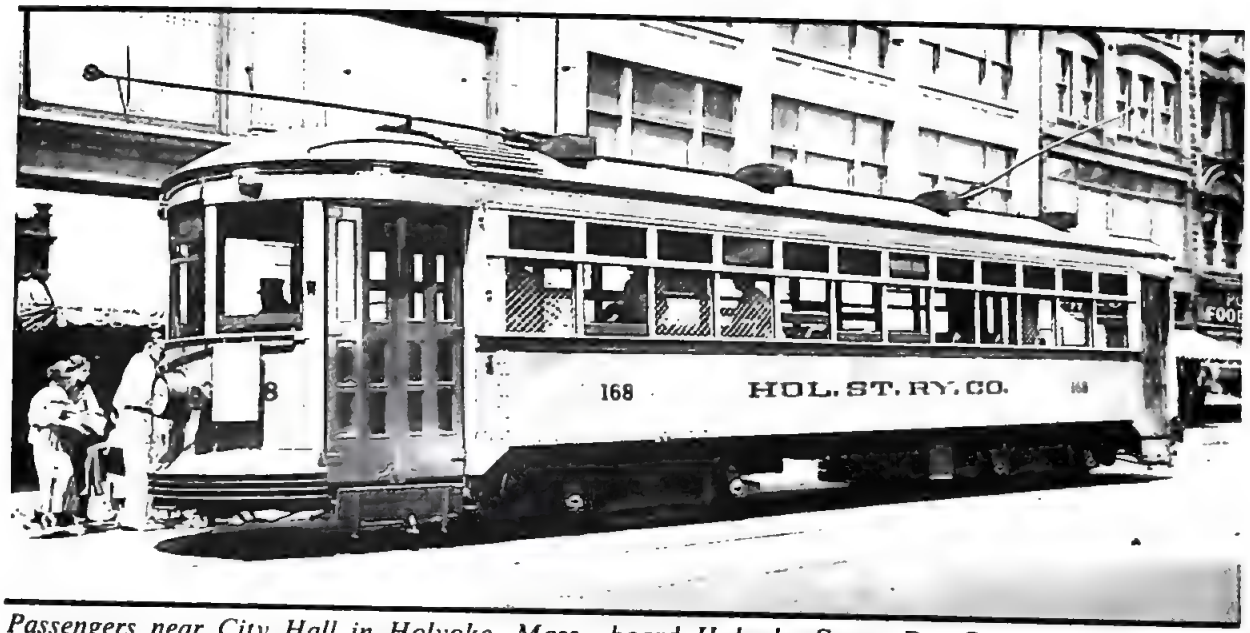
Engine crew and two shy passengers pose for the camera in front of Colorado Central engine 107 around the turn of the century. Note link and pin coupler.

New England Streetcar Serenade

Photos from the collection of Gorton T. H. Wilbur

World War I was raging on the distant battlefields of Europe while America was at peace on this day in June, 1916, as New London Street Railway open car No. 315 heads up State Street from Parade, passing the Mohican Hotel in New London, Conn.

Company employees stand in front of Rockland, Thomaston & Camden four-wheeled open car on Maine Central R.R. wharf at Rockland, Me., around turn of the century.



Passengers near City Hall in Holyoke, Mass., board Holyoke Street Ry. Co. No. 168 on a hot summer's day in July, 1935. Built by Kuhlman in 1919, car had been bought from Concord, Maynard & Hudson St. Ry.

Flags adorn the East Killingly, Conn., station on the 4th of July, 1912, as car starts to leave for run to Providence, R.I.

Test Your Railroad Knowledge

Streamlined CB&Q name-train Denver Zephyr *ran between Chicago and Denver.*

Name-Trains. In 1843, when the Central of Georgia opened its mainline between Savannah and Macon, 191 miles, it was America's—if not the world's—longest railway under one management. Fifty years later it inaugurated the country's first name-train, *Nancy Hanks*, which was intended to honor not Abraham Lincoln's mother but a famous racehorse named for her. This elegant, blue, gold-striped passenger train covered the 254 miles between Atlanta and Savannah in six hours, but lasted less than 8 months. Its two diesel-powered streamlined successors, both launched in 1947 but now extinct, also were named for racehorses, *Nancy Hanks II* and *Man o' War*.

Over a long period of years, hundreds of U.S. name-trains made history. Today only 73 sets or groups of name-trains are being operated, all by Amtrak. Some have survived from long ago; others have been revived or, in some cases, adopted fairly recently. They are better-than-average passenger trains but lack the elegance, distinctiveness, elite service, and proportion of on-time arrivals that characterized their more famous predecessors.

The Case of the Jumbled Name-Trains

Below is a list of nine name-trains that never existed, due to the fact that we've mixed up their names for you. To find the correct title of each name-train, match the first word on each line with the second word on another line. Then enter the result in the space provided. Two of the nine name-trains, incidentally, are still being operated today by Amtrak. Can you identify which ones those are? (Answers on page 35.)

A. Phoebe Limited	*Phoebe Snow*
B. Empire Zephyr	
C. 20th Century Zipper	
D. Olympian Crescent	
E. Powhatan Meteor	
F. Egyptian Snow	
G. California Builder	
H. Southern Hiawatha	
I. Silver Arrow	

Readers' Contest No. 1

by Albert Herskovits

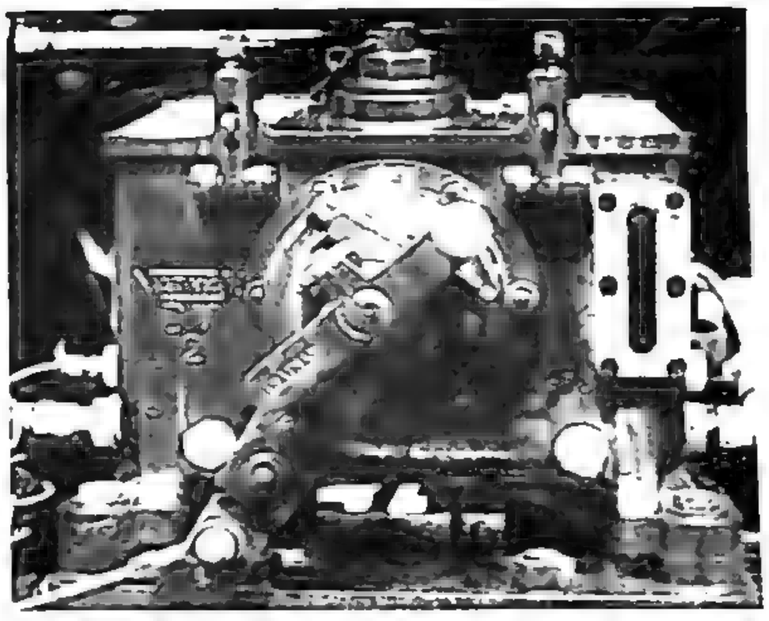
Recently, your editor spent a pleasant afternoon at a well-known steam tourist line somewhere in North America (for purposes of the contest we won't reveal which one). Unlike more rational steam buffs who are content to take action photos from a respectable distance, however, your editor decided to take only extreme close-up shots. As he scrambled alongside, underneath, on top of, and inside the line's various steam engines a few eyebrows from bemused passers-by were raised, but your editor remained undeterred. The results are what you see below: six views that represent different parts of a steam locomotive.

Your task is to correctly identify those parts shown in photos 2 through 6 (we've identified photo no. 1 for you). Use the coupon below (or a facsimile) and mail in an envelope to Contest, *Railroads Illustrated*, 40 East 66th Street, New York, NY 10021. Note that in photos 2, 3, 4, and 5 we ask you to identify the one part shown. In photo 6, though, you must identify *two* parts as indicated by the arrows. These are marked 6a and 6b on the coupon.

Identify the Locomotive Part

1 Driving wheel

2



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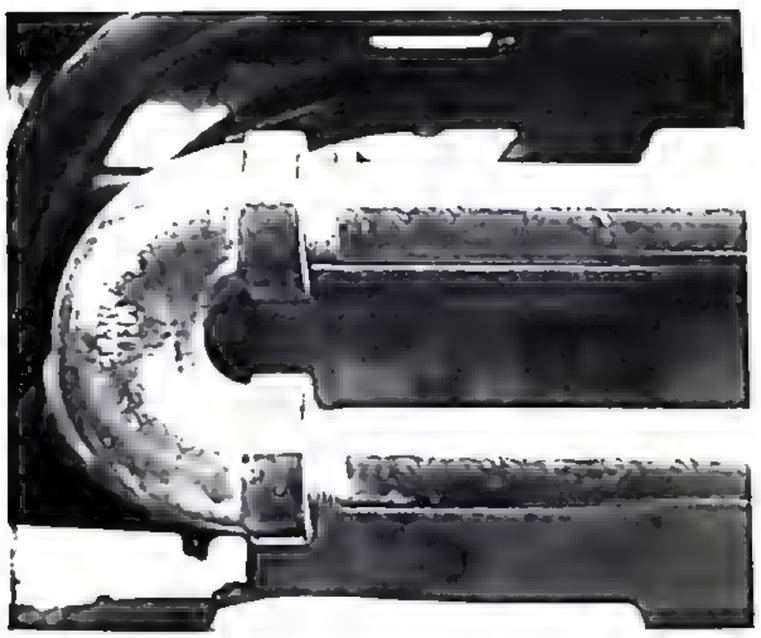

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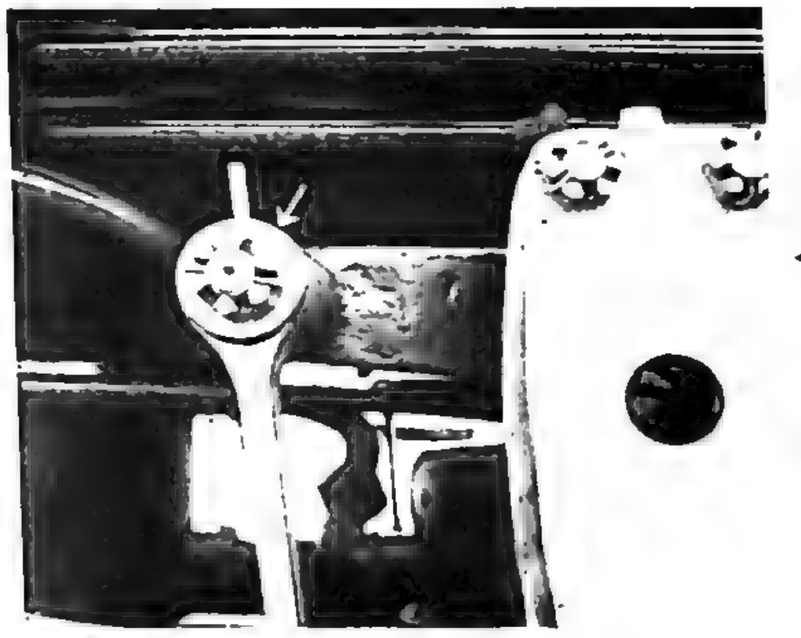


6

Prizes. First prize is $25; second prize $15, and third prize $10. One prize will be awarded in each category. If there are any ties, these will be decided in favor of entries bearing the earliest postmark. Any remaining ties (for instance, winning entries postmarked the same day) will be broken by random drawing.

Rules. The contest is open to all readers. but you may send in only one entry. Use the coupon at the right or a copy. Entries must be received by January 31, 1980. All entries become the property of *Railroads Illustrated* and none will be returned. Winners will be notified by mail and results will be published in this magazine, together with the correct answers, in a future issue. The staff and contributors to *Railroads Illustrated* and their families are not eligible to enter.

Be sure to *print* the answers on your entry as well as your name and address. Illegible submissions will be voided. Good

Mail this coupon or a copy to **Contest, Railroads Illustrated, 40 East 66th Street, New York, NY 10021**

2. _____
3. _____
4. _____
5. _____
6a. _____
b. _____

Name _____

Address _____

Canadian Pacific westbound freight with a lashup of two GP-35's and three C-424's crosses the southern portion of Lake Memphremagog after heading out of Newport, Vt., in Sept. 78.
Photograph by Ronald N. Johnson

On Track in the Diesel Age

with Jim Edmonston

I FEEL LIKE the engineer of a plug-run local who, after being stuck in the hole in the middle of nowhere, finally gets the green and moves back onto the main. My last previous column appeared in the Jan. '79 *Railroad Magazine* and it's good to be back covering the diesel-electric scene in a national publication. This new column is quarterly; therefore, the long-term and major happenings reported here will not be "news" so much as topics for discussion.

Once more I need input from readers all over the U.S. and Canada—recent events, comments, and good black and white photos. I'll be looking especially for reports on new locos, old models still in service, new schedules, new railroads, current operations in your area, anything unusual you find, also human interest, questions, corrections, etc. Our column is aimed primarily at railfans who want to be informed but not deluged with technical lingo. Details we need, yes, the more accurate the better, but I like to "flesh" them out for easier reading.

AS you know, the big locomotive news in late '78 was the GP-40X, then being tested on the Union Pacific, Southern Pacific, Santa Fe and Southern. These B-B's, with 3500 hp, are not simply higher-horse souped-up units but represent General Motors' new and radically different method of wheel control called "Super Series." The GP-40X also has the 16-645F3 engine and the optional HT-B high-adhesion truck, both of which are new. Santa Fe ordered units with Blomberg-M trucks. These trucks are 9½ inches shorter than previous types and restrict the railroad to wheels 40 inches in diameter, whereas the HT-B truck accepts 42-inch wheels.

The success of the GP-40X has had predictable results. Kansas City Southern,

which took delivery of the first SD-40-2's in 1972, bought the first SD-40X's, nos. 700-703. These big white beauties incorporate a new dynamic brake section added to the long hood behind the cab. That takes up most of the space found on the "end platforms" of all other SD-40's. There are no dynamic brake blisters topside any more, which really seems strange. The Super Series Wheelslip Control feature heads up the numerous electrical changes on these units, and all six D-87 traction motors are wired in parallel. Like the GP-40X, the SD-40X's are rated at 3500 hp with the 16-645F3 power plants.

EMD'S newest "50 Line" model should be on delivery by the time you read this. The GP-50 is a direct successor to the GP-40X, but won't look like it—no slanted radiator at the rear and no extra foot of space between trucks. Those with HT-B trucks can easily be distinguished from GP-40's, but orders delivered with Blombergs will look very much like their older sisters. Dynamic brake blisters will be retained, unlike the SD-40X's.

Roads with firm orders are Chicago & Northwestern (nos. 5050-5099), Southern (7003-7072), ATSF (3810-3839), Missouri Pacific (3500-3509) and SL-SF (790-799). Those Frisco units might end up delivered in Burlington Northern paint, or at least renumbered into the BN system. The familiar cross-wise turbocharger stack on the older GP-40 is one sure difference, as the GP-50 has an exhaust silencer over the stack which appears as a low, wide box on the roofline. Most three-quarter front views of these locos will hide this difference.

SOUTHERN RAILWAY has an order in for six 12-cylindered 2600-hp GP-39X's scheduled for delivery late this year (nos.

What resembles an SD-45 but is 5½ feet shorter and has 4- instead of 6-wheel trucks? Answer: the GP-40X. Three of them (nos. 7000-7002) were being tested on the Southern when this photo was taken at Danville, Va., July 78.
Photo by Curt Tillotson, Jr.
1207 College St., Oxford, N.C. 27565

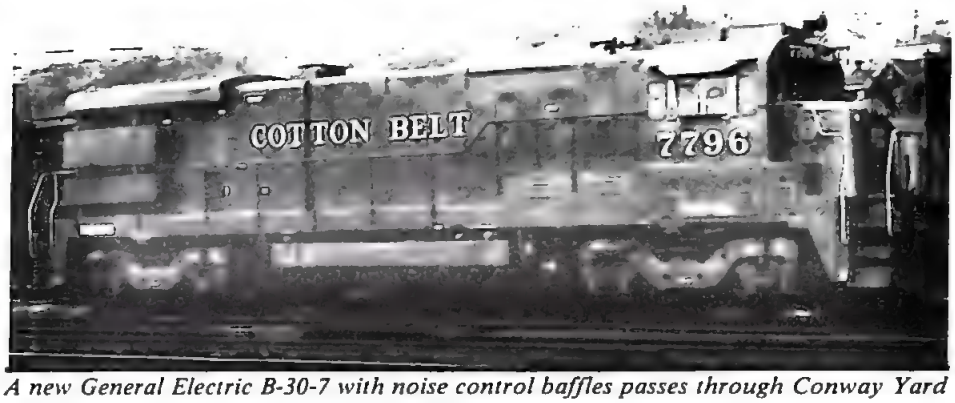
4600-4605). Possibly they will be delivered as model "GP-49" if EMD follows suit with its "50 series." This model should carry two radiator fans instead of three, which distinguishes GP-39's from GP-40's, but we'll have to wait and see.

GENERAL ELECTRIC, only other real competitor to General Motors in the locomotive field, introduced a new wheelslip system on four Cotton Belt B-36-7's, nos. 7770-7773. They call their entry "Sentry Adhesion System." GE has been very busy recently with the Conrail B-23-7's, large SP orders of B-30-7's, and Family Lines B and C-30-7's. Missouri Pacific, Chessie System (C&O side), Union Pacific, Burlington Northern, ATSF and National of Mexico were all big GE customers in 1979-'80.

Southern Railway, which seems to prefer the B-23-7 over the larger GE models, has ordered six B-36-7's for delivery in late 1980, undoubtedly to be equipped with GE's Sentry System and related improvements. These will be SR nos. 3815-3820. As an indication of how the EMD-GE competition race is shaping up, complete 1978 loco sales figures now show 1,007 units for EMD to 420 for GE.

By the way, all new units built after Jan. '80 must incorporate noise reducing gear. This shows up in the form of "Quiet Fans" (Q Fans) on EMD radiators, baffles on the sides of GE radiators, and exhaust silencers on stacks.

THE LOCOMOTIVE REBUILDING trade also has been active lately. The two largest, Morrison-Knudsen and Precision National, have been busy sliding rebuilt prime movers into older Geeps and SD's, thus giving us quasi-models such as GP-10, SD-10, GP-11, SD-20—even SW-14's in the case of the ICG-Paducah rebuilt EMD 1200-hp switchers.



A new General Electric B-30-7 with noise control baffles passes through Conway Yard north of Pittsburgh, Pa., on April 24, 1980. Photograph by Joe Jack

Morrison-Knudsen of Boise, Idaho, tested four of its model TE70-4S units on Southern Pacific in 1978. It now has a new model out, the TE50-4S. This is a rebuilt GP-9 with a 1500-hp Sulzer 6ASL prime mover, a new cab and chopped nose. M-K no. 5001 was completed in July '79. ICG's Paducah Shops have produced the SD-20, an almost completely new unit using Union Pacific SD-24B's as a base. A cab and short hood were added, and EMD's 645 power plants were substituted for the old turbocharged 567D3's. First unit out was ICG no. 2000, rated at 2000 hp.

Amtrak

Biggest motive power news, however, isn't diesel but electric. Amtrak has ordered 47 brand-new AEM-7's from General Motors (first batch, nos. 900-929 over 1980-'81, with 930-946 to follow). These locos result from testing the Swedish R4c X-995 in 1976-'77. The model designation stands for ASEA-Electro-Motive 7000 hp. ASEA, of course, is the Swedish Electric Corp., which has built many straight electric locos for Europe's railroads.

In the new Amtrak units, ASEA provides the electrical gear, Budd Co. of Red Lion, Pa., supplies the body, and EMD assembles the result. The locos are double-ended, bread loaf designs on eight drivers. They are not pretty, in my opinion, being too boxy; yet they are not ugly either. The roofs appear cluttered, with twin Faively pantographs and attendant gear, plus a huge, uncovered cluster of dynamic brake grids in the center. This almost looks like an afterthought and contrasts sharply with the otherwise sleek lines of the AEM-7.

These new units are replacements for the well-loved GG1's. A GG1 weighs 238 tons, an AEM-7 101 tons. GG1's will do anything you ask of them, whereas the AEM-7 is a passenger-only model, designed for use with the new lightweight Amtrak equipment. They aren't cheap at $1.5 million a copy, but they do have HEP, dynamic brakes, and the very sophisticated ASEA-EMD "Pressductor" wheelslip control. As with all new ideas, the AEM-7 will take some getting used to, and the GG1 will be hard to replace. The Northeast Corridor, with E-60's, AEM-7's

and Metroliners is quickly taking on a European image. Even Conrail's mighty E-44's have Faively pantographs.

Shortlines

In the industrial, privately-owned, shortline and miscellaneous field the hottest items are reconditioned Alco S-2 and S-4 switchers. Some get new cabs, some lose all cab area, and some are fitted with new prime movers. Still others are fitted with a chunk of ballast or slab of concrete and turned into powerless slugs. Southern Rails of Montgomery, Alabama, has been one of the major rebuilders. One popular treatment is the "drone," a cabless, remotely-controlled block of power which cannot be called a true locomotive by anyone who sees it.

Alco switchers in models S-1,2,3 and 4 have been very popular with industrial and shortline owners ever since the major railroads replaced them. Many of the little GE 44 and 70-tonners remain, as well as literally countless Plymouths, Porters, Davenports, Brookevilles and other obscure makes. These little "critters," getting down to 8 tons and smaller, work in special assignments for all types of industries and in a variety of gauges.

Railfan interest in these little-known locos has increased rapidly in recent years, and personally, I find the search for "critters" most satisfying. Please report all types of locomotives in all types of operations to me and we'll pass the information along. Sometimes, the unit may not even look like an engine, but tell me about it anyway, with photos if possible.

THE SHORTLINE and industrial market is responsible for the preservation of minority makes of diesels such as Baldwin, Fairbanks-Morse, Alco and Lima. Switchers of all four "deceased" builders can still be found if you know where to look. Armco Steel Corp., in Middletown, Ohio, is the last major user of Lima power, although the numbers are greatly reduced by current lack of work and the steady influx of EMD SW-1001's.

F-M products are few and far between, from Southwest Portland Cement in Victorville, Calif., to the southern Indiana coal fields, to the last couple of veterans on the Milwaukee Road around Savannah, Ill. South Central Tennessee RR, which bought Apache Railway H-10-44's nos. 100 and 200, reportedly had a bad wreck which totalled one of them.

Baldwins and Alcos continue to be seen regularly, Baldwins being scarcer. Alcos are popular rebuild material as mentioned earlier. Southern Pacific's large T-6 and C-415 roster has been sold off and scattered nationwide. The many new shortlines formed from abandoned parts of Class One roads usually opt for Alcos.

These little lines seem to spring up almost overnight and make railfanning that much more interesting. A little-used branch of a big system might operate one train daily, always with a little Geep or SW. After you've seen the operation, it can lose your interest. Then it goes up for abandonment, a group of shippers or a State government steps in and, pretty soon, a new line with two or three different locomotives is in town. Great!

Southern Power

Mark Sublette, P.O. Box 3215, University Station, Clemson, SC 29632, reports seeing one of Southern's rare U-30C's (only five on SR) rolling a freight south on the Macon line out of Atlanta last May 8th. Other units were Conrail SD-45 no. 6225 and Southern's SD-45 no. 3105. U-30C no. 3800 was a surprise. Mark says that SP power and some Frisco (though that might change with the BN takeover) can be seen now and then at Tilford yard in Atlanta.

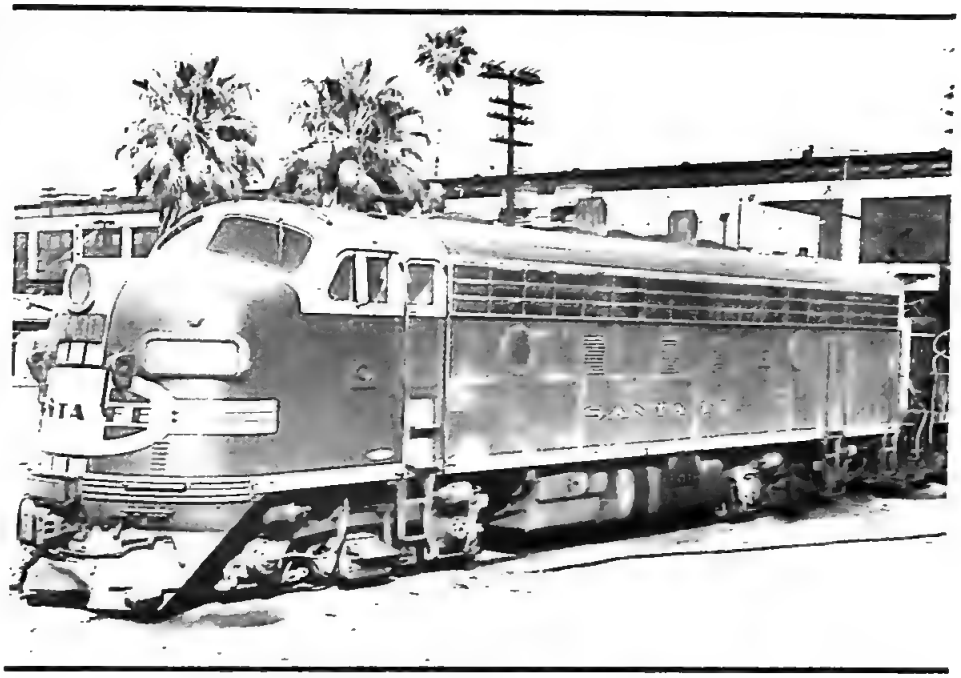
Southern is dismantling the North Avenue Coach Yard since Amtrak, which now operates the *Crescent*, services all equipment at New Orleans and Washington, D.C. In recent years, the yard has been used mainly for storage purposes. Two ex-Central of Georgia SD-9's, nos. 207f and 205L, are still making the cross-town transfer runs between Inman Yard and Pegram Shops.

The Atlanta & St. Andrews Bay, Mark tells us, is still operating its last Alco RS-1, no. 913. The Bay Line has given chopped noses to many of its units as a result of the Youngstown, Florida, wreck two years ago. Mark attends Clemson University, which happens to be where the current Miss USA studies. Any report on her, Mark?

Conrail

Joe Jack, Box 136, Ambridge, Pa. 15003, reports from Conrail's huge Conway Yard near his home. This facility continually moves locomotives in transit between the builders and their new owners,

Five Southern Railway F-7A's wheel a long, 166-car freight at 20 m.p.h. upgrade at Shelton, N.C., on the morning of Nov. 7, 1970.
Photograph by Curt Tillotson, Jr.



Feb. 28, 1971: F-7A #243C, in from Cleburne, Texas, is about to be rebuilt by Santa Fe shops in San Bernardino, Calif., for use on ATSF's Texas lines. These units ceased operating in California in 1964-'65.
Photo by C.H. Cox
7413 Creekview Road, Richmond, Va. 23234

moves used units to repair or scrap yards, and industrial locos from one buyer to another.

A recent sighting was Amtrak AEM-7 no. 901 moving from EMD at La Grange, Ill., to the Corridor. Also seen were four U.S. Steel Baldwin switchers nos. 928-931, all 1949-built DS-4-4-1000's, and no. 1206B, a very rare Baldwin S-8B, one of the nine Cow-Calf sets that Baldwin built for Oliver Iron Mining of Virginia, Minn. All units are owned by U.S. Steel and they're being moved from the Minnesota ore fields to the Fairless Works near Philadelphia, where winters will be much easier on these veterans.

Other units seen coming through Conway lately include new Cotton Belt B-30-7's from General Electric, and UP and L&N castoffs on their way to Naporano Iron & Metals in New Jersey (Union Pacific GP-9, no. 349 and Louisville & Nashville rebuilt Alco S-1, no. 2370). Also spotted were Santa Fe U-30-C's in pool service, and Winfield Railroad's GE 50-tonner Centercab no. 5. This last engine was transferred to Penn-Dixie Cement at Lamson, Mich., as the Winfield RR closes down. Henceforth, operations at Penn-Dixie's site in Winfield will be handled by truck. So long, Winfield, sorry to see you go!

AMTRAK inaugurated the *Pennsylvanian* last April 27th, with F-40's and "Amcans" between Pittsburgh and Philadelphia. The old "power swap" operation at Harrisburg (electric to steam, then electric to diesel) will be dropped. F-40's will now go through to Philly where electrics will take over. In summer, this trip is daylight both ways, and the westbound run is daylight all year long. It should get some tourist and railfan interest.

RECENT Conrail power notes show that B-23-7 no. 1912, although wrecked and scheduled to be scrapped, is back in service with new front end paint. Sister engine 1975 went to Altoona with her cab demolished on the fireman's side, and no. 1980 sports a new slogan on her sides: "Keep it Movin' on Conrail."

WHERE HAVE ALL the F units gone? Conrail's substantial fleet is down to a very few. Western Maryland's 7170 is in the B&O Museum in her original WM "fireball" scheme. Southern has FP-7's in special service only, and those legions of AT&SF and Southern Pacific F's are memories. In the East, pockets of F's are hard to find, but there are still a few on Bangor & Aroostook, CP, CN, Ontario Northland and Bessemer & Lake Erie. B&LE's last F's work out of Kaylor, Pa., on the old Western Allegheny.

The South is almost completely devoid of F's, with Family Lines and Southern ruling the territory. Clinchfield has an A/B/B/A set (200-250-869-800) left over from steam excursion days and now saved for specials. Burlington Northern still has the biggest fleet while Western Pacific's were reported to be in trouble. Other pockets can be found on the Soo Line, C&NW and KCS. National of Mexico and Chihuahua-Pacific still have F's south of the border. Any working in your area? Let me know.

RAILROADING in the 80's will be a challenge. Fuel supply, a slack economy, the automakers' troubles, new regulations and ever-decreasing rail mileage will have to be reckoned with. We've lost the Rock Island, Burlington Northern is taking over the Frisco, and Grand Trunk Western controls the Detroit, Toledo & Ironton. The rail map shrinks. One bright spot has to be coal, the "fuel of the future," and railroads are still the best way to move black diamonds. I'm not sure I like the new anti-noise program; the sound of a heavy freight struggling upgrade is part of my life, whether it was steam or diesel.

So be informed in the 80's and help keep us informed. Send news to me at 821 Clearfield Lane, Cincinnati, Ohio 45240.

Tacoma Municipal Belt Line serves as a connecting road with Tacoma, Wash., industry and Burlington Northern. Alco S-2 #902 is seen here hard at work in this 1960's scene.
Photo by W. Wilkinson
4423 N. 11th St., Tacoma, Wash. 98406

Collector's Corner

by Stanley L. Baker

When and where the first railroad baggage car was operated in America is not known. In researching early wood cuts and engravings, one learns that luggage was conveyed as early as 1830 on roofs of stagecoach-type cars on the Baltimore & Ohio. Later, open box-shaped cars were used to carry luggage and mail sacks. Still later, ordinary passenger coaches were divided into two sections, the smaller section being for luggage and mail and the rest of the car for passengers.

At some point in history the railroads introduced a standard-type car exclusively for baggage, and then U.S. mail and express cars of somewhat similar construction. In the early days of riding the steamcars, as they were called, travelers going West, particularly emigrants, often rode in Colonist cars and took with them an inordinate number of packages, carpetbags, valises, suitcases, trunks, and the like.

Enroute, some impedimenta became separated from the passengers. When the train arrived at a given destination, the disunited luggage was promptly unloaded onto the station platform, where the travelers would pick it up, or was hauled inside the station and piled on the floor. One can only surmise the amount of damage often done by employees handling it. Some station helpers and trainmen were known as notorious baggage smashers.

This disorganized system created problems for both the railroads and their revenue passengers, occasionally resulting in lawsuits. Many a frustrated traveler had to dig through the conglomeration of luggage of all types and descriptions in order to retrieve his personal belongings. Not infrequently, two people would claim the same piece of luggage, argue over it, then get into a fist fight to settle the dispute.

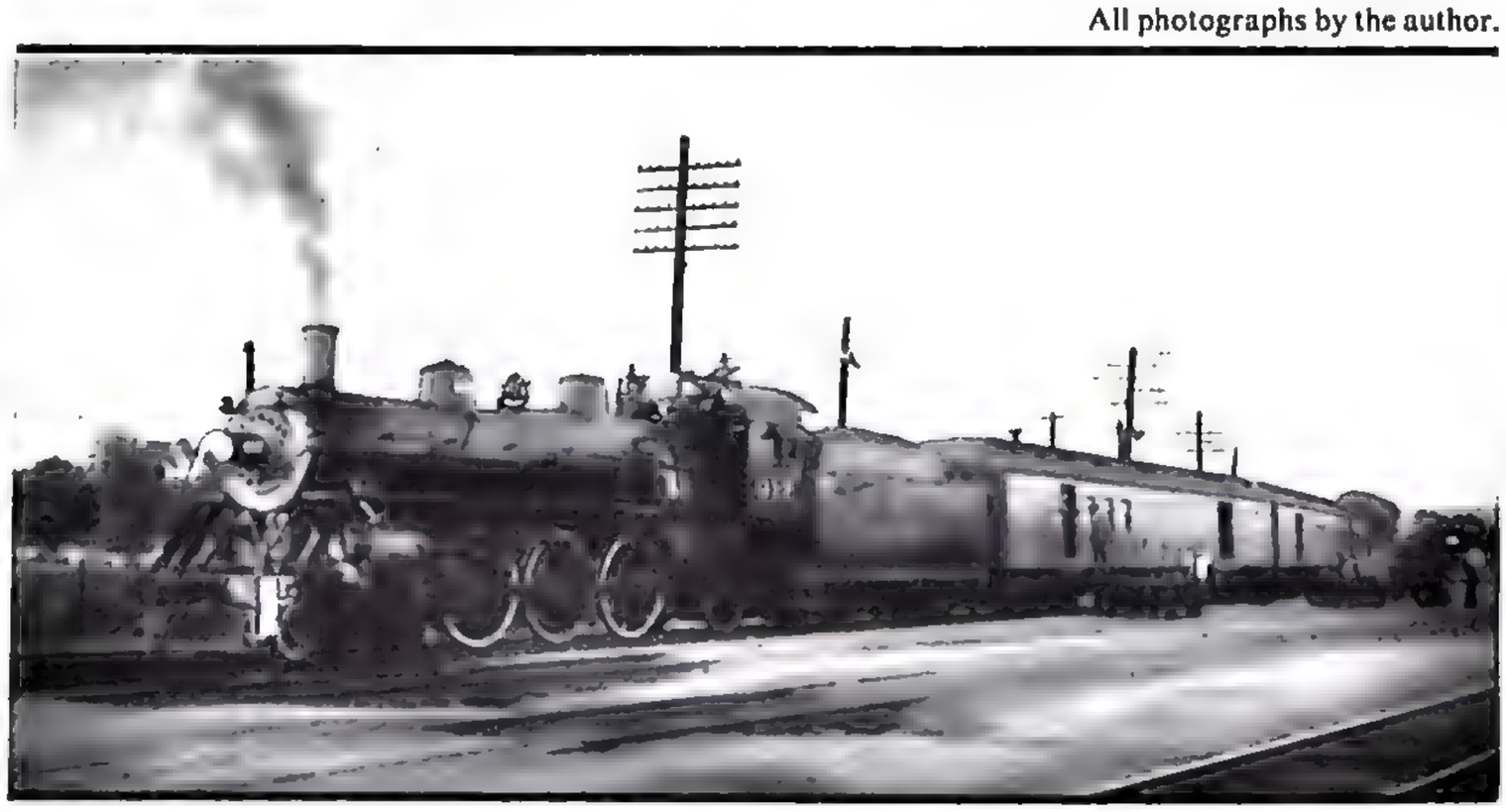
In those days, most baggage transported on trains had no controlled labeling system. Passengers depended primarily on visual identification to claim their property, or sometimes scribbled their names on it in advance to prove ownership. It usually happens, though, that when a problem becomes widespread, someone comes up with a solution.

A man named William Morris conceived the idea of a small rectangular brass tag attached to a passenger's baggage for use as a claim check. He designed a pair of them, of different sizes, bearing matching numbers and upon which was stamped the destination point and name of railroad. The larger tag was threaded with a narrow leather strap which could be attached to the suitcase, trunk, or whatever. The smaller or duplicate tag was given to the traveler for claiming his luggage at journey's end. This system of tagging made the railroads accountable for proper loading and unloading procedures at way stations all along the line. It also helped the harassed baggageman to deliver various articles to their rightful owners. The duplicate check was then rejoined with the larger tag on the leather strap and the pair used again for other luggage. Railroads all over the country gradually adopted this device.

Eventually, brass checks on straps were replaced by standard pre-printed cardboard tags string-tied to the luggage. The bottom stub is the claim check. It is detached and handed to the traveler, while the upper portion stays with the luggage enroute. These card stock prototypes are still in common use.

Today, old brass baggage checks are hard to come by. Most of them were made rectangular, but others were round, oval, hexagonal or shaped like a heart or a shield. A sizeable number of checks were issued by railroads now long gone, and many carried names of depots that also have vanished. To locate a matched set of these relics intact on the original leather strap is not easy because so many of them became separated down through the years. A single check is more likely to be found.

All photographs by the author.



Prices of baggage checks for collectors vary, but generally run from $5 to $15 for single checks to $20 to $35 for a matched pair on the original leather strap. The value depends upon physical condition — nicks, dents, corrosion, etc. Checks in good condition from long-abandoned roads fetch higher prices.

These old brass checks are occasionally found in antique shops, estate sales, railroadiana shows, and even flea markets and garage sales, in addition to mail order dealers in railroadiana. It you are lucky enough to

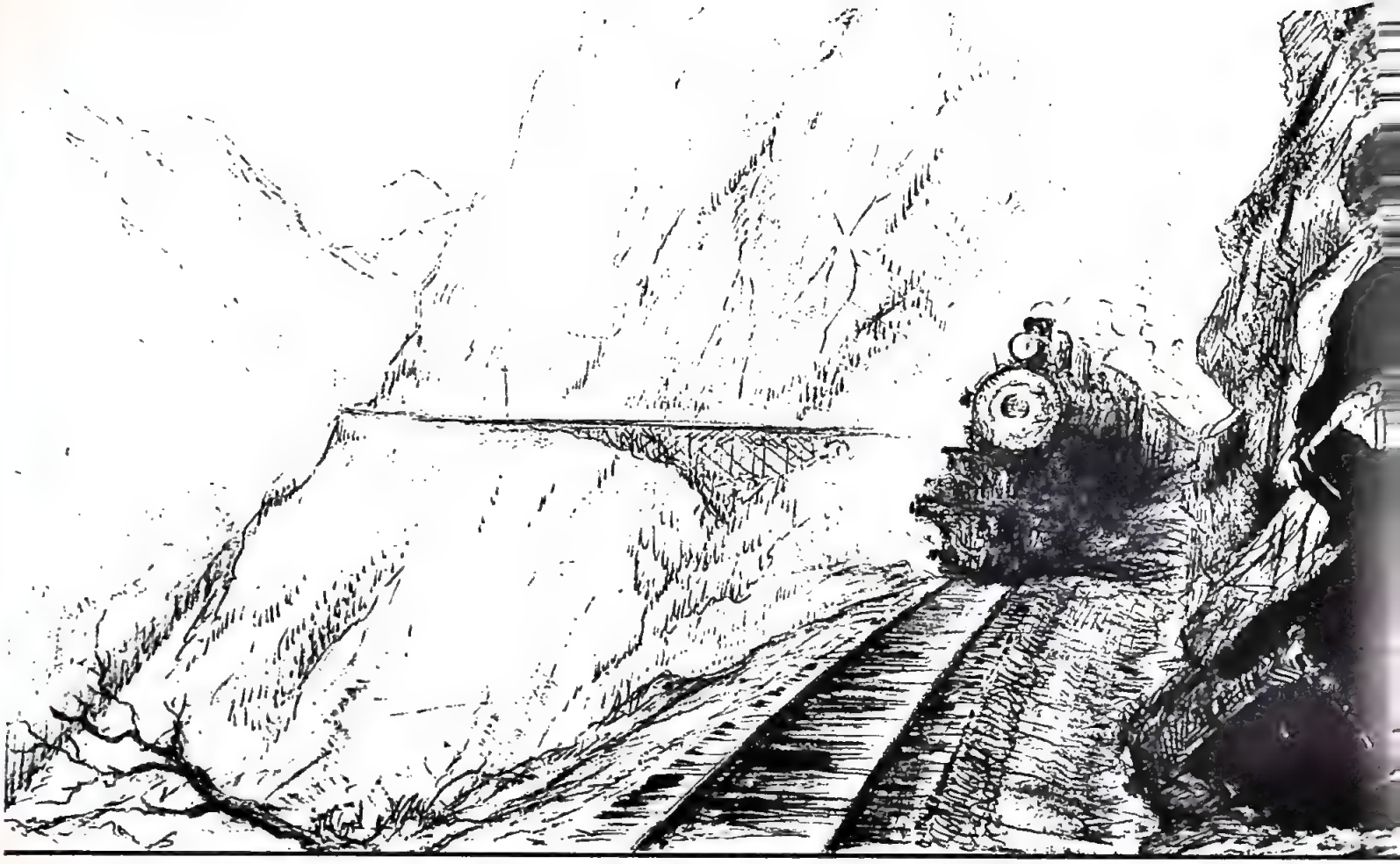
pick some up at a garage sale, chances are you can get them cheap. In my opinion, these checks are sleepers, overlooked by many hobbyists, but they serve as reminders of the great days of rail passenger travel.

Stanley L. Baker is author of a book on railroadiana and has written numerous articles on the subject for various railroad publications. □

A display of brass checks on leather straps used by railroads to route baggage. Roads include Grand Trunk, Lake Shore & Michigan Southern, Oregon Short Line.

▲ *(Top of page) Photo at left shows how a brass baggage check on its leather strap was looped around the handle of a traveler's bag in years gone by. Brass checks were later replaced by pre-printed cardboard claim checks, as shown at top right, which are also collected by some.*

◀ *(Facing page) A Chicago Great Western passenger train with mail and baggage cars in the consist arrives in St. Paul, Minn., in 1946. Photo above it shows two examples of a brass baggage check. One on the left belonged to the Hannibal & St. Joseph.*



"The Devil's Slide was everything that engineering ethics contravened."

Illustrations by Victor G. Westman

FICTION **Guardian of the Devil's Slide**

by Frank L. Packard

A PARTICULARLY BAD piece of track on the Hill Division was the Devil's Slide. When the Transcontinental was being built through the Canadian Rockies, the consulting engineers advised a double-loop tunnel that looked on their sketch like a figure 8. The directors examined the sketch with interest until they noticed the pencilled estimate in the corner. That settled it. They asked for an alternative — and got the Devil's Slide.

First and last, that trackage has euchered more money out of the company's treasury than the original idea would have cost. The old Board never did learn its lesson. Thanks, however, to younger blood, they've begun now to build as they should have built in the first place. It isn't finished yet, that double-looped tunnel, but some day more than a few men will sleep easier because of it.

From Carleton, the super of the Hill Division, headquartered at Cloud City, down to the last section hand and trackwalker, the Devil's Slide was a nightmare. The dispatchers, under their green-shaded lamps, cursed it in the gray hours of dawn; the traffic department cursed it spasmodically, and the motive power department in the shape of Regan, the master mechanic, cursed it all the time. It had only one friend, the general passenger agent, because of its scenery. He was right — the scenic grandeur was a bonanza — and he made the most of it in booklets, leaflets, pamphlets, and magazine ads.

The Devil's Slide was everything that engineering ethics contravened. It was neither level nor straight. In its marvelous two miles from the summit of the pass to the canyon below, its nearest approach to the ethical was a 3 percent drop, but the grade was mostly 5 percent. It twisted, turned, and dove around projecting mountainsides at scandalous angles and with indecent abruptness.

"Chick" Coogan vowed, with a grin, that he could see his own headlight coming at him about half the time on every trip he made up or down. That, of course, was sheer exaggeration, but it gave the division the only smile it ever had when the Devil's Slide came up in conversation. The big story, Coogan and the Devil's Slide, has since taken on the aspects of a legend. Anyone on the Hill Division can tell you that story. If you'd rather get it first-hand in a roundhouse, or between trains from the operator at some lone station that's no more than a siding, or in the caboose of a way freight, don't try kidding to make the boys talk—just say a good word for Chick Coogan. That's all you need.

Chick didn't come to the Transcontinental as a full-blown hogger from some other road as many of them did. He was born and bred on the Hill Division. Began as a kid almost before the steel was spiked down. Starting at the bottom, he went up. Callboy, sweeper, wiper, fireman, one after the other. Promotion came fast in the early days, for with the Rockies

bridged, business boomed. At 24 Coogan had a switching engine. Two years later he began pulling the *Imperial Limited*, pride of the system.

"Coogan," said Tommy Regan, "is the best ever."

Nobody questioned that, in the days before seniority was the main qualification for promotion. You couldn't put anything over Chick in the cab. Besides, something about the young fellow caused the whole division to like him. Six feet tall in his socks, Coogan's strong lithe body played up to every inch of his height. Black hair. Jet black eyes that laughed *with* you, never *at* you. Always a smile and a cheery nod. An interest in how you were coming along. Popular? Yes. He just naturally staked out a claim for himself in almost everybody's heart.

Queer how things go! On the day that Chick married Annie McPherson, a redheaded Scotch girl with a face like an angel, Regan gave him the 505, a new Mountain-type racer from the Montreal Locomotive Works, and the *Imperial Limited*, as a sort of wedding present. That night Big Cloud turned itself inside out doing him honor.

Big Cloud has had other celebrations, before and since, but none quite so unanimous as that one. Restraint, never the division point's favorite trait, was hung up that night higher than the arms on the telegraph poles. People danced, sang, guzzled liquor, hugged and kissed one another, ate heartily, laughed, and talked loudly. They burned fusees, many of them, that Carleton, the division super, pretended not to be aware had been filched from the division storekeeper. The trainmaster, too, was temporarily blind in both eyes as booze flowed like a river down the gullets of railroaders.

Regan summed up the drunkenness the next evening over his usual game of chess with Carleton, upstairs in the super's office above the station. "Apart from Chick and Annie and me," said the master mechanic in a voice that was still suspiciously husky, "and maybe the minister, everybody was—" The rest was a wave of his hand. Regan could wave eloquently.

"Quite so," agreed Carleton. "They'll still be talking about it, Tommy, when you and me are on the scrap heap."

The master mechanic returned to the chess game. "It's your move."

COOGAN took the *Imperial* and the 505, with the schedule rights pertaining thereto, including a clean and clear-swept track. Day after day, Number 1 or 2, as the case might be, pulled into town on the dot. Coogan's stock, already high, soared higher. He was still the same happy-go-lucky guy he had always been; and yet not quite the same, for two new loves had come into his life: redheaded Annie and the fast, handsome 505.

In the little home on the edge of Big Cloud he would talk to Annie about the big Mountain-type racer; and Annie, being an engineer's daughter as well as an engineer's wife, listened with pride and understanding and always a smile of encouragement. And in the cab, aside from work, Annie was his favorite conversation piece. In due time he confided to his fireman, Jim Dahleen, that they'd soon have a baby. During that era such events were usually kept secret until the accouchement. Jim grinned sheepishly, stuck out a grimy paw.

Days, weeks, and months glided by. One morning a sober, serious-faced group of men stood gathered in the super's office as Number 2's whistle, in from the eastbound run, sounded across the buttes. They looked at Regan. Sad-faced, the master mechanic left the room and clumped downstairs to the platform as the 505, trailing a white smoke plume, shot majestically around the bend and rolled into the station.

For a moment he stood irresolute. Then he started to walk to the head end, reconsidered, and headed for the roundhouse. Engines were changed at Big Cloud. The 505, already uncoupled, was scooting up toward the spur to back down for the turntable. Regan mopped his forehead nervously. He hadn't the heart to break bad news to anyone so close to him as Chick Coogan was.

An air of desertion hovered over the roundhouse. The 'table was set and ready for the 505, but not a soul was in sight. Regan crossed the turntable, walked around its half-circle, and entered the roundhouse through the wide engine doors by the far pit. Here, just inside, he waited as the great locomotive came slowly down the track, took the 'table with a slight jolt, and stopped. He saw Coogan, big and brawny, swing out of the cab and heard him speak to his fireman.

"Looks like a graveyard around here, Jim. Wonder where the boys are. I won't wait to swing the table. They'll be around in a minute, I guess. I want to see the little woman and find out if our baby is born yet."

"All right," Dahleen said. "Leave the engine to me. I'll run her in."

Coogan crossed the yards with a stride that was almost a run. Regan opened his mouth to shout, and swallowed a lump in his throat instead. Twice he made as though to follow the engineer, but something held him back. Then he slowly recrossed the tracks and climbed the stairs to Carleton's room. The other division officials were still there: superintendent Carleton in his swivel chair; Harvey, the division engineer; Spencer, the chief dispatcher, and trainmaster Riley.

"I couldn't," he said huskily. "My God, how can you tell a man that his wife and baby son are dead?"

MacVicar, a spare hogger with a boomer fireman, took out the *Limited* that night; and it was three days before Coogan reported back to work. Maybe it was the fit of his black storeclothes, or maybe his bent shoulders and drawn face, but he didn't look as straight as he used to. He climbed to the cab as an old man climbs—painfully. The boys hung back and didn't say anything. Nothing you could say would do any good.

COOGAN NEVER FAILED to keep the 505 and the *Limited* on schedule, as he had always done before—until the very last time he was at the throttle—only he didn't talk any more, and the slope of his shoulders got a little more pronounced, a little more noticeable. And on the afternoons of his layovers at Big Cloud he'd walk up to the cemetery on the butte, behind the town, to gaze at two fresh mounds, one larger than the other. That was all.

It worried Regan. One day the short, paunchy, and big-hearted master mechanic approached Jim Dahleen. "What did he say on the run, Jim?"

"He ain't talkative," the fireman replied.

"What the hell!" the master mechanic growled to conceal has emotion. " 'Tain't doing him any good going up there afternoons, but God knows it's natural enough. You've got to *make* him talk, Jim. Wake him up."

"Why don't you try it"

"H'm, yes. So I will. I sure will."

He meant to, honestly. But something in Coogan's eyes said "no"

to Regan as they did to all other men; and so the days passed.

Then one night something new happened. Regan and Carleton, again playing chess, were alone in headquarters except for Spencer, the chief dispatcher, in the next room. It was getting close to 11:30. The *Imperial Limited*, westbound with Coogan in the cab, had pulled out on time, as usual, an hour and a half before. The game was lagging. Regan had lost his queen and a bishop.

Conversation had gotten around to the bereft engineer. "I don't know what to do for him," Regan mused. "I'd like to do something."

"A man's got to work out such things for himself, Tommy," Carleton said, "and it takes time. Only time will help him. I know how fond you are of Chick, even more than the rest of us, and that's saying a lot, but you're thinking too much about the problem."

Regan shook his head. "I can't help it, Carleton. It's *got* me. He broods too much. I've got a hunch that something's gonna break very soon. Ever have a premonition? It gets on your mind and you can't shake it off. Tonight it's on me more than ever."

"Nonsense." The super forced a laugh. "Nobody believes in premonitions any more. Maybe you've had too much of Dutchy's lunch-counter pie. You're getting fat, Tommy." He glanced down at the chess board. "It's your move. Your king's in check."

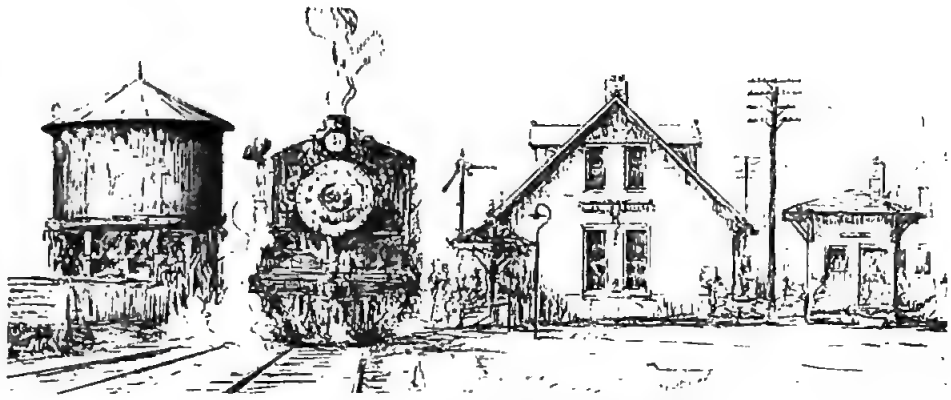
A SHARP CRY came from the dispatcher's room, followed by an instant's silence, then the crash of a chair hastily pushed back and fallen to the floor. Spencer, with a white face and holding a tissue in his hand, burst in upon them.

Carleton sprang to his feet. "What's the matter, Spence?"

"Number 1," the DS blurted out, extending the sheet on which he had scribbled a message as it came in on the sounder.

Carleton snatched the paper. Regan looked over his shoulder and they read: "Number One, engine 505, jumped track east of switchback number two on Devil's Slide. Report three known dead, others missing. Engineer Coogan and fireman Dahleen both hurt."

The super's voice rang like chilled steel: "Clear the line, Spence! Get your relief and wrecker out at once! Wire Dreamer Butte for their wrecker as well, so they can work from both ends. Now then, Tommy—my God, what's the matter with you?"



The town of Big Cloud, on the Hill Division.

Regan was leaning over the back of his chair, his face strained, an arm outstretched pointing to the Transcontinental's big publicity calendar on the wall. "I knew it," he muttered. "That's what it is!"

Carleton's eyes traveled swiftly from the master mechanic to the wall and back again in bewilderment. He shook Regan by the shoulder. "Man, are you crazy?"

"The date," whispered Regan. "It's the 28th."

"So what, Tommy?" Carleton's voice was quiet, restrained.

Regan gave a hard laugh. "It's just a coincidence, maybe—or maybe not. *A year ago tonight Chick Coogan was married!*"

Steps were coming up the stairs. The voice of Flanagan, the wrecking boss, reached them. Other voices, excited and loud, joined in. Carleton slapped the master mechanic on the back.

"I don't wonder it caught you, Tommy. It's almost creepy. But there's no time for that now. Let's go!"

Regan followed the chief into the dispatcher's room, sweeping the pieces off the chess board as he stood up. The men listened to additional details of the wreck coming in over the wire.

It was a nasty mess—but like everything else it might have been worse. Instead of plunging to the right and dropping to the canyon 1800 feet below, the 505 had chosen the inward side and rammed her nose into the gray mass of rock that made the mountain wall. The wreckers from Dreamer Butte and Big Cloud tell of it to this day.

For 24 hours they worked, with barely time out to eat a sandwich or two, gulp down black coffee, and relieve themselves physically. Then they slumped over—and fresh men took their places. There was almost no room to work, just the narrow ledge of the right-of-way on a circular sweep with the jutting cliff of old Piebald Mountain sticking in between, hiding one of the gangs from another, and around which the big wrecking cranes groped dangling arms and chains like fishers angling for a bite.

The worst of this mauled and tangled snarl went over the canyon's edge in pieces as axes, sledges, wedges, bars, and big hooks ripped and tore their way to the heart of it. And as they labored, those stolid, grimy, sweating men of the wrecking crews, they wondered—wondered that anyone had come out alive.

BACK AT HEADQUARTERS in Big Cloud, other men wondered what had happened, and why and how, and what had caused it. Every man who could throw even the least bit of light on the smashup went on the carpet in the super's office. They all testified—all but Chick Coogan and Jim Dahleen, who couldn't. The engineer was in bed with queer, inconsequential words upon his tongue and an ugly welt across his forehead that had laid bare the bone from eye to the hair-line of his skull. Dahleen was there also, not hurt so badly but unable to talk.

The man who tended switchback number one reported that the *Limited* had passed him at perhaps a little greater speed than usual—which was the speed of a man's walk, for trains *crawl* down the Devil's Slide with fear and caution—but not fast enough to cause him to think anything about it. Hardy, the gold-braided, brass-buttoned conductor, spoke his piece. He laid the trouble to the "air," something wrong with the brakes. The train began to slide faster and faster after rounding the first switchback and her speed kept increasing up to the

moment of the crash. He figured it couldn't be anything else. Just the "air." It wouldn't work, and train control was lost. That was all he knew.

And while Regan swore and fumed, Carleton's face set grim and hard. A week later the fireman, able to leave his bed, faced the super across the scarred oak desk. Carleton had not a word of sympathy, but dug into him right away.

"Dahleen, I want to know what happened in the cab that night, and I want a straight story. No other kind of talking will do you any good."

Still white with the pallor of his injury, the fireman flushed suddenly red. "You're jumping a man pretty hard, aren't you, Mr. Carleton?" he said resentfully.

"Maybe I've reason to. Well I'm waiting for that story."

"There's no story that I know of. After we passed switchback number one we lost control of the train. The air wouldn't work."

"Do you expect me to believe that?"

"You don't seem to, Mr. Carleton."

"What did you do to stop her?"

"There was nothing much I could do."

Carleton's fist crashed down on the desk. "You're lying! That wreck and the lives it cost are at your door, and if I could prove it—" He glared at the fireman. "As it is, I can only fire you for violation of Rule G. I thought at first it might have been Coogan going off his head a bit; and you are rotten enough to let the blame go there if you could, and want me and every other man to think so."

Dahleen took a step forward, his fists clenching. "That's enough, Carleton," he cried hoarsely. "Enough from you or anyone else."

The super's eyes were icy. "I've given you a chance to tell a straight story, but you wouldn't. God knows what you did in the cab that night. I believe you were fighting drunk. I don't believe that gash in Coogan's head came from the wreck. If I knew for sure, I'd fix you." Opening a drawer in his desk, he whipped out a metal whiskey flask. "When you were picked up, this was in your jumper pocket!"

Dahleen wet his lips with the tip of his tongue.

"Forgotten about it, had you?" Carleton asked grimly. "Well, have you anything to say?"

The fireman shook his head. "Ain't anything to say, is there?" Then: "It's mine, but you can't prove anything. You can't prove I took a drink. D'ye think I'd be fool enough to shoot my mouth off?"

"No, I can't prove it. Dahleen, you're through. I'll give you twelve hours to get out of the mountains. I think the boys would tear you to pieces if they knew the story. So far, nobody knows except the man who found this flask in your pocket and myself. Now, get out!"

Without a word, Dahleen started for the door.

"Wait!" said Carleton suddenly. "Here's a pass East for you. I don't want your blood on my hands, as I probably would have if Coogan's friends got hold of you."

Dahleen took the slip of paper with a mirthless grin, turned again, and the door closed behind him.

CARLETON KEPT HIS WORD. Twelve hours, and then from the division rose a cry for revenge.

Regan was like a madman. "Damn that rat! Why in hell did you let him go? You should have held him until Coogan could talk, and then we'd have him."

"Tommy"—Carleton laid a hand quietly on the master mechanic's shoulder, "I don't think Coogan knows, or will ever know again, what happened in the cab that night. His mind is a blank. The doctors offer no hope for his mental recovery. But even if he could talk, do you think he'd squeal on his fireman?"

"You have no proof against Dahleen?"

"No, except that he had liquor in his possession while on duty. That's why I fired him."

At the end of a month, Chick Coogan was on his feet again, physically recovered and apparently as well as ever; but mentally, somewhere, a cog had slipped. His brain was weakened, his memory gone, although he seemed able to care for himself. One thing clung to him, though: the Devil's Slide. Regan and Carleton talked to him, trying to guide his thoughts and stimulate his memory.

"You remember you used to run an engine, don't you, Chick?" asked Carleton.

"Engine?" Coogan nodded. "Yes, on the Devil's Slide."

"The 505," prompted Regan. Coogan gave him a vacuous look.

Carleton tried another tack. "You were in a bad accident one night. You were in the engine cab when she smashed. Do you remember that?"

"The smash on the Devil's Slide."

Carleton smiled hopefully. "That's it. I knew you'd remember."

"They're always there," said Coogan simply. "It's a bad track. I'm a railroad man and I know. It's not properly guarded. I'm going to work there and take care of it."

"Work there?" asked Regan, his eyes misting. "What kind of work?"

"Just work there. Take care of the Devil's Slide."

The super and the master mechanic looked at each other. Then they walked back with Coogan up to his mother's place, where he'd gone to live again after Annie and the baby died.

"He'll never touch a throttle again," Regan said with a choking voice as they came out. "He was the best hogger the Hill Division ever had. It's hell, Carleton. I don't think he really knew you or me. Queer, how the Devil's Slide got him, what? We can't let him go out there."

"I wonder if he remembers Annie," Carleton mused. "I was afraid to ask him. I didn't know what effect it might have. No, we can't let him go out to the Devil's Slide."

But the doctors said yes. They said it was about the only chance he had. The thing was on his mind. It was better to humor him. Outdoor mountain life might in time bring him around again. So Chick Coogan went to the Devil's Slide. Officially, he was on the payroll as a section hand; but Millrae, the section boss, had his own orders from the super: "Let Coogan alone. Let him do what he likes, only see that he doesn't come to any harm."

And Coogan, when Millrae asked him what he wanted to do, answered merely: "Take care of the Devil's Slide," and that is what he did for the rest of his life. Up and down, down and up, two miles east, two miles west, the former engineer patrolled the figure 8; and never a weakened rail, a sunken tie, or a loosened spike escaped him. These discoveries he duly reported to Millrae, and by doing so he may have prevented more than one train wreck. In time people came to call him the Guardian of the Devil's Slide—not slightingly, but as strong men talk.

He slept there, in one of the switchtender's shanties, ate with them, and scrupulously insisted on paying for board and lodgings out of his wages: 25 cents for each meal and 25 cents for a bunk, or a blanket on the floor. In early dawn, at mid-day, or late after-

Railroad Reviews
by Albert Herskovits

On the 8:02: An Informal History of Commuting by Rail in America
Lawrence Grow
176 pages, hardcover, $14.95
Mayflower Books, 1979 ***

Few railroad histories are devoted to commuter trains, possibly because long-distance travel has a more universal appeal. This book rectifies that omission. The result is a highly readable and informative view of commuter roads and their contribution to America's development, from the early New York & Harlem in the 1830s to the regional transportation agencies of today. While it doesn't cover every commuter line in the U.S., *On the 8:02* concentrates on four large metropolitan areas: New York, Boston, Philadelphia, and Chicago, and the fifteen lines still serving these cities. In fact, it was the development of steam railroads that made possible the creation of the suburbs. Today's commuter is not too different from the 19th century businessman who wanted to live away from the soot and smells and overcrowding of the big city where he worked.

At first, railroads carried passengers mostly on pleasure trips but soon realized the potential in transporting those who wanted to live in areas located along the line. Railroads invested in real estate near their rights-of-way and the process of "commutation," or the granting of reduced fares, was started. Railroad publicity departments a century ago hammered away at the prospect of a more healthful environment, with "green, grassy lawns, forest-trees, rugged rocks . . . elegant and commodious villas," etc.; not to mention the inducement of lower rents and lower taxes. This prompted many thousands to leave the cities. Commuter service began to decline after the onset of the Depression of the 1930s; but now, with the high cost of automobile transport, commuter railroads are regaining lost ground—in many parts of the country they provide the last remnant of passenger service.

It is a fascinating story, one neglected in most company histories we've seen. Many line drawings and photos, of which about twenty are in color, enhance the stimulating and well-researched text. Many serious students of railroad history will want to have this book in their libraries.

Route of the Minute Man: Quadrant Press Review 8
Tom Nelligan, Scott Hartley
64 pages, softcover, $5.00
Quadrant Press, 1980 **

As the authors point out, the Boston & Maine has always been a survivor—from the 1907 takeover engineered by J.P. Morgan's New Haven system to its more recent decision not to become part of Conrail. This volume focuses on the period 1969 to 1979, during which time the B&M became a leaner, more efficient road, one now operating close to the break-even point. The text primarily covers its various main- and branchlines: what kind of freight is hauled, where it interchanges with other roads, and what sort of motive power you are likely to find, and where. One chapter covers passenger service; we were surprised to learn that today's Boston & Maine is the seventh busiest passenger railroad in the U.S.

There are dozens of well-chosen photographs by the authors. Most are as sharp and crisp as a New England spring morning and many display the splendid scenery through which much of the B&M passes. The text is intelligently written but the constant parade of locomotive models (GP9's, RB-30's etc.) in the captions can be irritating to non-diesel oriented enthusiasts. Well-priced at $5; we recommend the book to those who want to keep abreast of current-day New England railroading.

The Railroad in Literature
Walt Whitman (1819-1892)

It was a happy thought to build the Hudson river railroad right along the shore. The grade is already made by nature; you are sure of ventilation one side—and you are in nobody's way. I see, hear, the locomotives and cars, rumbling, roaring, flaming, smoking, constantly, away off there, night and day—less than a mile distant, and in full view by day. I like both sight and sound. Express trains thunder and lighten along; of freight trains most of them very long, there cannot be less than a hundred a day. At night far down you see the headlight approaching, coming steadily on like a meteor. The river at night has its special character-beauties. The shad fishermen go forth in their boats and pay out their nets—one sitting forward, rowing, and one standing up aft dropping it properly—marking the line with little floats bearing candles, conveying, as they glide over the water, an indescribable sentiment and doubled brightness. I like to watch the tows at night, too, with their twinkling lamps, and hear the husky panting of the steamers; or catch the sloops' and schooners' shadowy forms, like phantoms, white, silent, indefinite out there. Then the Hudson of a clear moonlight night!

—From *Specimen Days*, 1882.

Passenger Train Annual No. 4
Kevin McKinney, publisher;
Kevin P. Keefe, managing editor
80 pages, softcover, $9.95
PTJ Publishing, Inc. **

Most recent in the *Passenger Train Journal* series, *Annual No. 4* covers late 1978-79, a year distinguished by the loss of the Rock Island *Rockets*, Southern Railway pulling out of the passenger business, and several Amtrak name-trains being discontinued. Primarily it is a picture book with many fine color and black-and-white photos amply covering passenger operation, though emphasizing motive power. For our taste, a bit too many b&w photos are telephoto shots, but each one of the over forty color shots is excellent (our favorite: Joe McMillan's view of a South Shore interurban train clattering along the snow-filled streets of Michigan City). Another minor criticism is the small (8 point) Souvenir typeface used for the captions which we found difficult to read. Otherwise, this is a fine illustrated compendium of the variety still to be found in North American passenger travel. □

Waybills

All ads in this section cost 10¢ a word to subscribers, 15¢ to non-subscribers. Word count includes name and address, but zip code is free. Send payment with your ad to Railroads Illustrated, Waybills dept., 40 East 66th Street, New York, NY 10021 (minimum $2). Occasionally, slight editing is required for clarity. Please include your personal address when using P.O. Box numbers. Thank you!

I'M INTERESTED in anything Central New England. Also want New York Central Harlem Division public timetables prior to 1914.—Edward J. Colgan, 172-12 Crocheron Ave., Flushing, NY 11358.

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Running Extra

This section is a free service to readers who have specific questions or need research information on topics related to railroading. Items will be limited to availability of space so a question may sometimes have to be held over for a future issue. Address your queries to Running Extra, c/o *Railroads Illustrated,* 40 East 66th Street, New York, NY 10021.

My interest is railroad and antique pocket watches. I would appreciate any details regarding the establishment of watch inspection on various railroads.—Thomas L. DeFazio, 2514 Ruffner Rd., Melbourne, Fla. 32901.

I'd like any information on Black Hills railroads, especially Rapid City, Black Hills & Western; also Milwaukee Road mixed train equipment.—Donald C. Dietrich, 9508 15th Ave., N.E., Seattle, Wash. 98115. □

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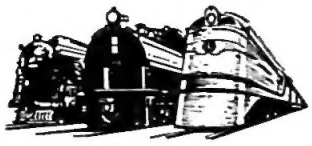

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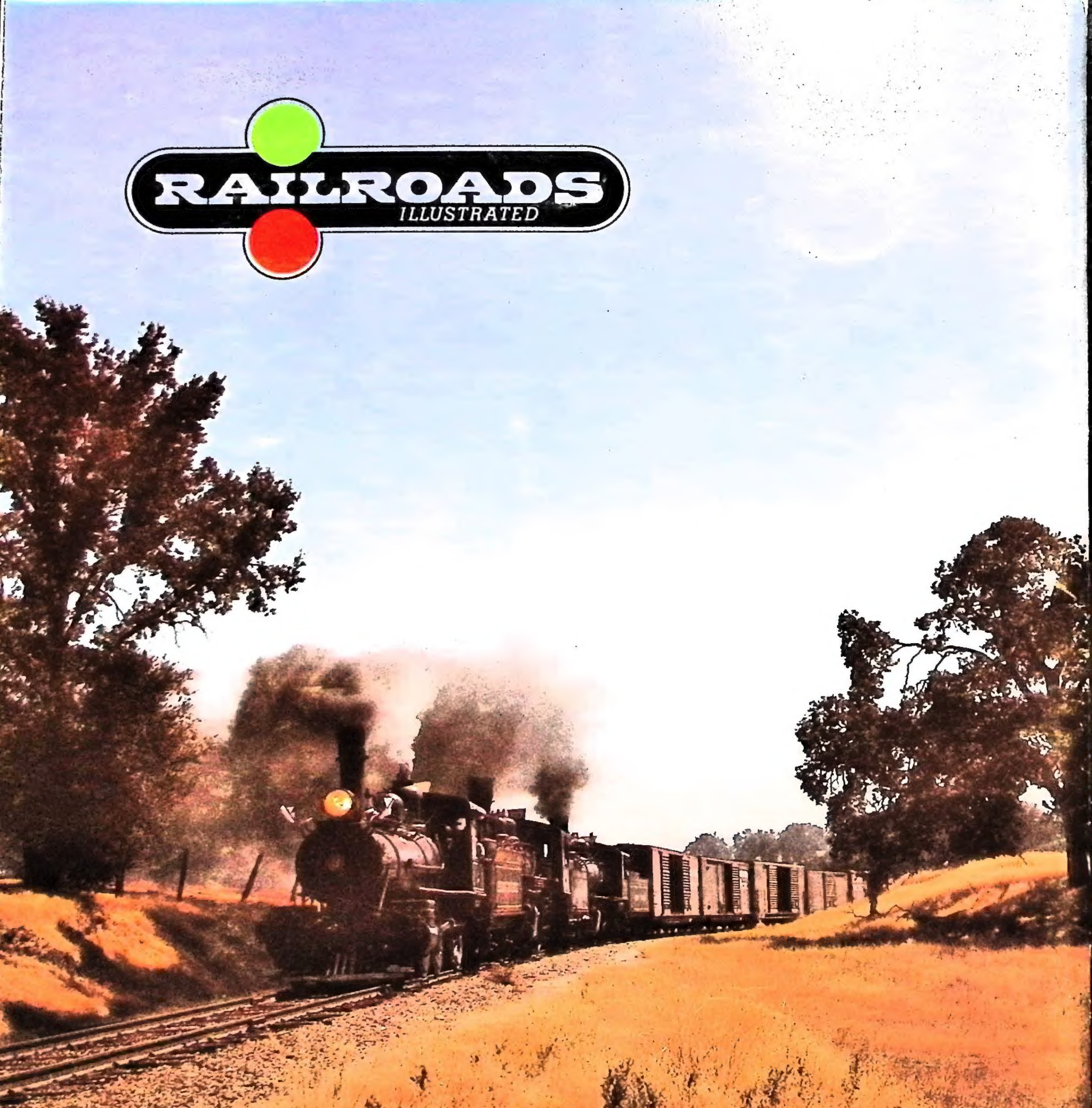
Answers to page 20

B. *Empire Builder*
C. *20th Century Limited*
D. *Olympian Hiawatha*
E. *Powhatan Arrow*
F. *Egyptian Zipper*
G. *California Zephyr*
H. *Southern Crescent*
I. *Silver Meteor*

The two name-trains still being operated today by Amtrak are *Empire Builder* and *Silver Meteor.*

RAILROADS ILLUSTRATED



A serene late summer landscape in California's historic Mother Lode country comes to life as a Sierra Railroad triple-header, consisting of Nos. 3, 28 and 34, pulls a Pacific Locomotive Association mixed train near the end of a 46-mile round trip near Jamestown on Sept. 3, 1972.